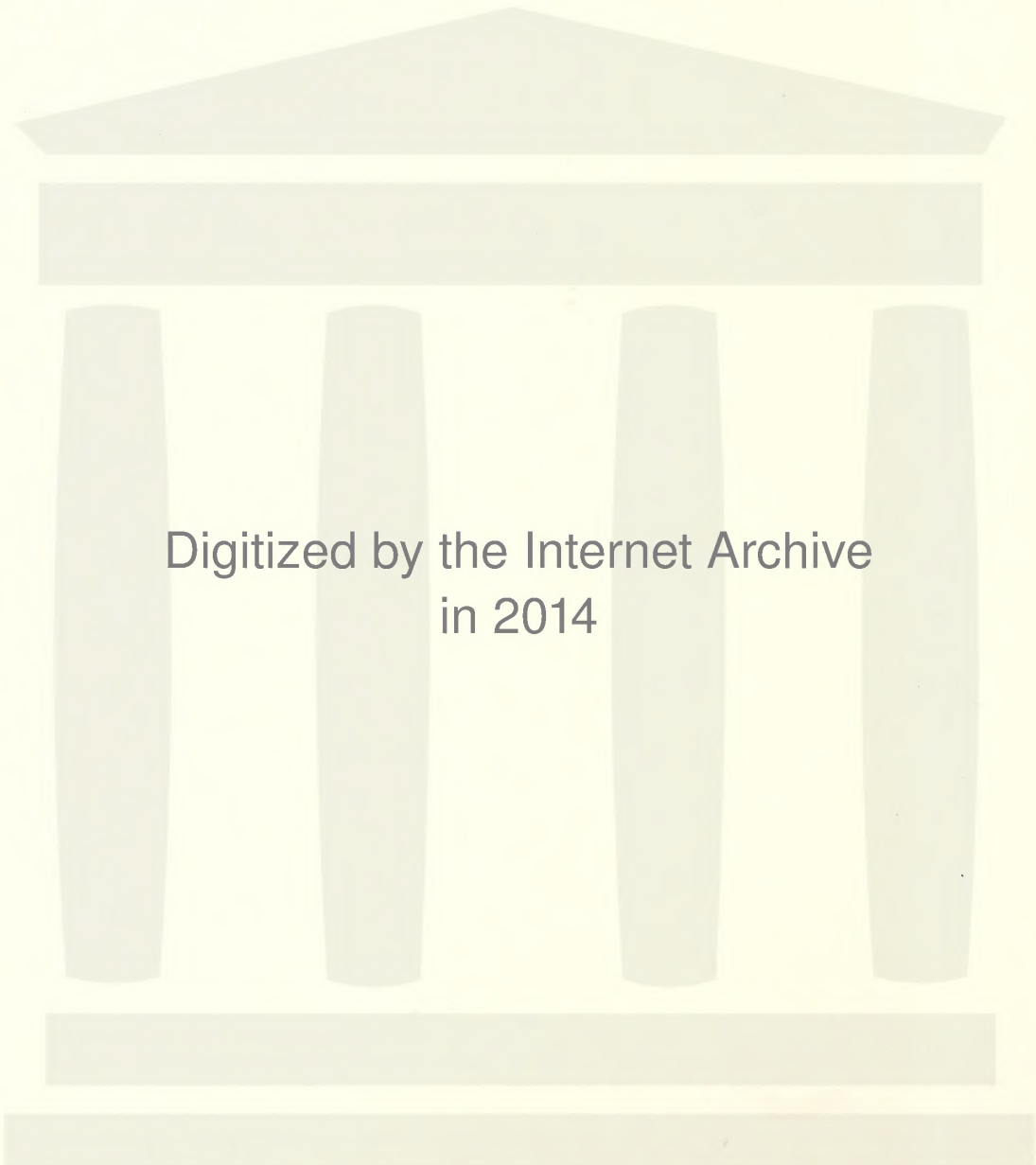

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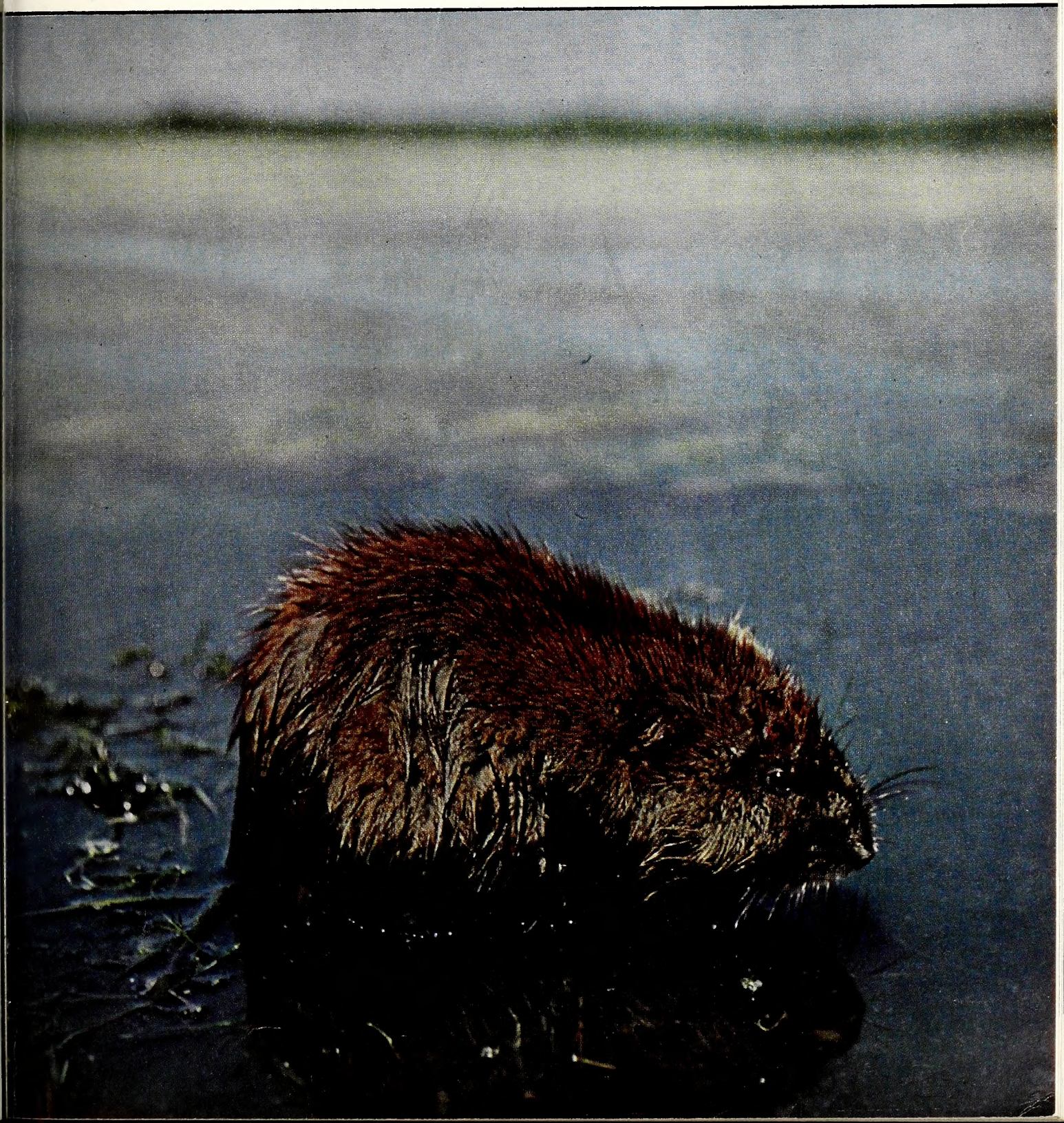

Photo by Jim L

Will There Be More?

Fishery management makes you think of biologists working with nets and test tubes and hatchery jars—measuring and sampling and perhaps even stocking fish now and then. You look for results in terms of the picture above, which shows a magnificent striped bass caught in Albemarle Sound. One of the most historic achievements in the field of fishery management took place recently hundreds of miles from Albemarle Sound, but the final result will be measured by fishermen in the sound and its tributaries. For the story of fishery management in the conference room, see "Battle for Oxygen" on page 10.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

The muskrat is a valuable and abundant furbearer. During the 1958-59 season, Tarheel trappers harvested 119,596 pelts and sold them for $107,638. He is also valuable for food and every winter, thousands are shipped from Currituck Sound to northern markets where they bring about $.50 a pound retail.

To the delight of the farm boy who has discovered the joys of trapping, the muskrat occurs in every county of North Carolina. He provides many youngsters with spending money, but more than that, he teaches the young trapper about the ways of the wild and gives him an appreciation for our outdoor heritage. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Small Game Management

CONE'S FOLLY

Public-owned lands can never supply all the needs of public hunting and fishing. Land in private ownership can support as much game per acre as heavily managed wildlife refuges—if landowners will use such proven techniques as food and cover development, stray dog and cat control, and intelligent harvest. Here's how one landowner manages his wildlife.

By Sam F. Poole
District 4 Game Biologist

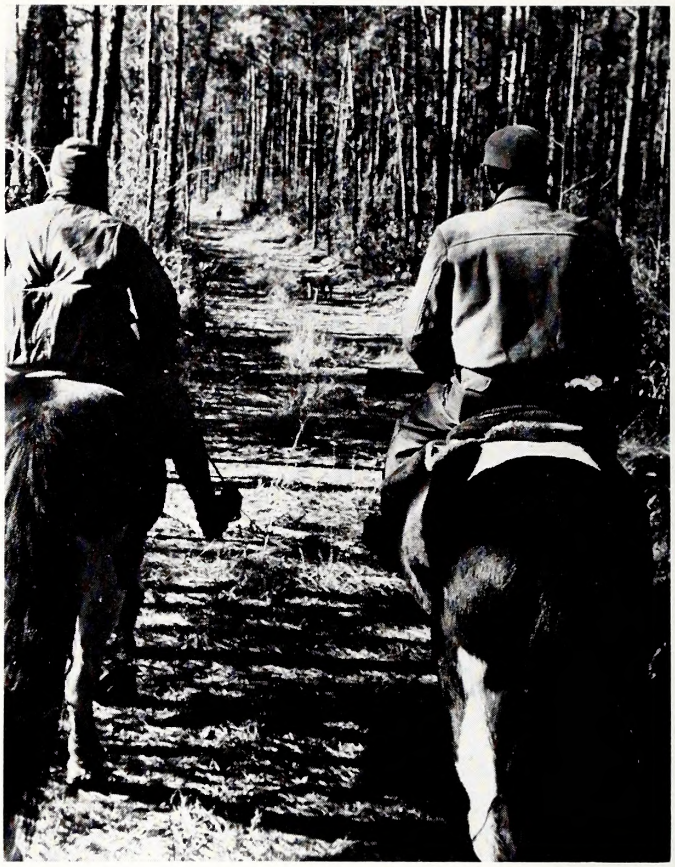
THE Yankee visiting in the South for the first time is generally due a surprise. "Where are the stately old plantation houses, surrounded by gnarled oaks dripping with Spanish moss?" he asks. "Where are the piney woods, where is the hunter's paradise that I've read about?"

Over much of the South the plantation house has been replaced by several acres of neat ranch-style homes along a suburban street, the piney woods is occupied by a sprawling textile factory, and the hunter's paradise is but a dream.

True there are plantations remaining, there are millions of acres of pine forests, and—paradise or not—the number of hunters increases each year. But the plantations have become summer homes for owners who spend much of the year in downtown offices, and the piney woods echo to the whine of chain saws harvesting pulpwood and timber. In the face of booming populations of hunters the nearest we can come to a hunter's paradise is a well-managed farm where special attention is paid to providing food and cover for the native game birds and animals.

The shooting preserve, where a game manager looks after the hunting supply for the owner and harvest is restricted to the few birds downed by the owner and his guests, is a rarity in North Carolina today.

An examination of one such preserve should illustrate what *can* be done when timber production is a primary interest and wildlife a secondary objective, and should suggest practices that are adaptable to smaller areas where wildlife must always be secondary to farming.



Photos Courtesy Frank Simpson

Three miles northwest of Atkinson on the Black River in Pender County is a unique farm and forest area called Cone's Folly. This is an area of pine and hay vegetation with a few small farms around the perimeter. The owner of the 6,000-acre timber preserve is industrialist Benjamin Cone of Greensboro, who has owned the area since 1939.

After managing Cone's Folly primarily for pine timber and secondarily for wildlife during many years, farm game manager Frank Simpson says that

Fifteen lakes on the area provide water for small and large game, and food and resting areas for waterfowl. The larger lakes are stocked with bass and bluegill and provide fishing.

similar results could be achieved on smaller tracts at negligible expense. When he began his efforts in 1946 he established a seed bed for bicolor lespedeza. Now landowners and sportsmen can obtain free seedlings from the Wildlife Commission, but then it was a matter of raising his own.

The supplemental bicolor and sericea lespedeza plantings begun on Cone's Folly were among the first established in the Pender County area. They were planted to provide food and cover for quail and rabbits. Experiments with other plants, such as benne and sesbania were tried, but Simpson has concentrated on shrub lespedeza-sericea plantings. Cone's Folly now has over 75 plots.

Simpson explains that he has found bicolor lespedeza to be the most reliable fall and winter food for quail. He says that sericea makes excellent roosting and escape cover, but bicolor is the preferred food.

The early plots were planted on 1/4-acre and 1/2-acre areas, about a half-mile apart. Planting patterns were later intensified by placing plots a quarter-mile apart. Currently, new plantings are over seeded with Korean lespedeza since this annual lespedeza assures food for quail during the first year and controls competition from other plants while the bicolor is becoming established.

Annual seed mixtures are also established intermittently throughout the area. An additional thirty-acre field is alloted to soybeans, peas and corn. An eight-acre field is planted with browntop millet for quail and doves.

Plans have been made to control-burn small areas to enable native legumes to become dominant, thus increasing the variety of food available. Pasture plantings of ladino clover and fescue are provided for the supplemental feeding of deer in the area.

BELOW: An exciting moment comes as a hunter brings up his gun on a flying bobwhite. RIGHT: Owner Ben Cone of Greensboro displays the payoff for wildlife management on the area.

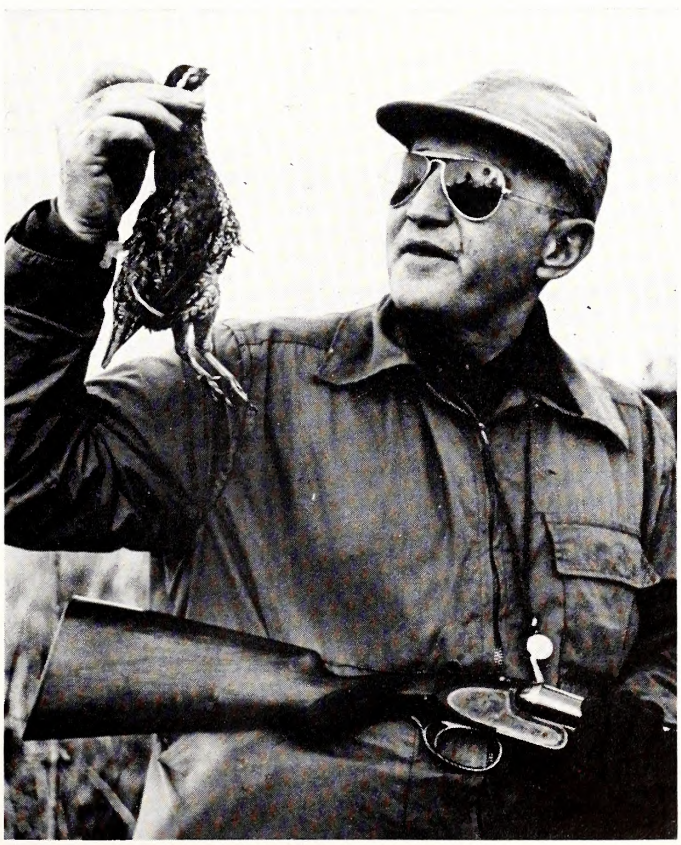
Some multiflora rose has been planted along the main highway fronting the owner's modest bungalow. This was done for fencing as well as for decorative effect.

There are fifteen lakes scattered through the area. These lakes, ranging in size from a 1/4-acre pond to five acres, provide water for large and small game. Ducks feed on aquatic plants in these lakes and use them as resting areas. The larger lakes are stocked with bass and bluegill, providing fishing for local residents. Nest boxes for wood ducks have been placed on a few of the lakes.

Another management practice used on Cone's Folly is the control of predators through the use of humane box traps. More than 50 stray cats have been removed from the area using these boxes, which resemble rabbit gums and are baited with sardines.

Through intensive management of good natural habitat, both small game and big game have thrived on the area. Quail, dove, rabbit, squirrel, and deer are present. The results of management have been proven on this area, where quail is the most popular target.

Every bobwhite killed on the area is examined, and time after time the quail crops are filled with bicolor seeds. Even better hunting is expected in the future, as new techniques are developed and adopted, but the owner is well pleased with the results even now. Cone's Folly is an outstanding monument to better hunting through habitat improvement.



Early Settlers Faced a Game Shortage

By Chester S. Davis

Reprinted from The Winston-Salem Journal & Sentinel

This is the third and final article on the settlement of the Moravians in Piedmont North Carolina. They were taken from a much longer history of the Moravians now available in book form from Old Salem, Inc., in Winston-Salem. Priced at $1.00, the 75-page book was published by the Wachovia Historical Society.

WHEN sportsmen gather to complain of the evil times that have come upon them there is much wistful talk of "the good old days" when the streams, filled with fish, ran green and clear through forests that shaded great herds of game.

The Moravians, who were among the first to settle on the Western Piedmont, saw this land as it was in the beginning and they recorded what they saw. From those reports it is plain that early Wachovia was not the sportsman's paradise we sometimes think.

To begin with, there were game laws even then. While these laws, like so many North Carolina laws of that time, probably were not enforced, they, at least, raise some questions regarding any great abundance of game.

In 1753 there was a five pound sterling fine for killing deer between February 15 and July 15. Moreover, only landowners—and, then, only landowners who cultivated at least 5,000 hills of corn —were permitted to hunt for deer.

Illustrations by Duane Raver

Some game, however, was so abundant as to be pestiferous. In 1768, for example, the General Assembly required all land owners to kill at least seven squirrels or crows each year or else pay a penalty.

When Spangenberg made his exploratory tour of Western North Carolina in 1753 he reported abundant buffalo "sign" in the vicinity of Table Rock mountain. The elk was gone but deer were common throughout the area. "There are" Spangenberg said, "many hunters here who work little, live like the Indians, shoot many deer and sell their skins."

Black bear were numerous in Wachovia and so were wolves—black and gray—and wild turkey. "The wolves and bear," Spangenberg noted, "must be exterminated if cattle raising is to succeed." As late as 1774, a year of a killing spring freeze, one of the Brothers noted that "panthers have been seen several times." That year both the Moravians and the Royal governor offered a bounty of ten shillings for killing a panther.

The Moravians, who never were much as hunters or fishermen, killed their first game in Wachovia (two wild turkeys) on November 18, 1753. (Besides being the day after the settlement party arrived in Wachovia it also was the Sabbath.) On the 20th Brother Feldhausen walked into the woods and got lost. He returned on the 21st proudly shouldering the carcass of a deer.

Because they were not accomplished hunters the Moravians soon came to rely more on professional hunters—the "long hunters" of the frontier—than on their own skills. Even so, they had their innings. One June day in 1764, for instance, Brother Holders went into the woods to seek a wandering cow and he came out of the woods with the cow, a she bear, three cubs and a deer.

The interesting thing, however, is that the diaries are filled with the mention of a shortage of game. In 1753 Spangenberg commented, "There is little game to be found." In 1754 John Jacob Friis noted, "There is not much game here." In December, 1756, another Brother reported, "A bear hunter brought his gun to our gunsmith. He complained that neither he nor his companions had seen a single bear—all the hunters say the same."

There were years, however, when the mast crop

failed. Then the animals, bears, wolves and panthers, visited the Moravian towns seeking food. Each loss, whether it be a lamb, a sheep, a calf or a hog, was duly reported in the diary. In those first years such losses were common.

The Moravians did some trapping and some skin hunting. They dug pits for wolves late in 1754 and caught two wolves in February, 1755. They also trapped a few beaver in Wachovia and took some raccoon, muskrat (which they sold as young beaver), oppossum, bobcats and mink.

Skunks were common enough. Of this animal they said, "He who comes near is horribly repaid by what is thrown out."

In the main, however, they left hunting and trapping to the professionals with whom they traded. Deer skins were the big item. On March 15, 1765, the Moravians sent five wagons loaded with 9,400 pounds of deer skins from Bethabara to Charlestown. That same year two hunters, who came to Bethabara from across the mountains, left 1,600 pounds of deer skins at the store.

Passenger pigeons were "numerous" in Wachovia, "especially in the Winter." "In the Fall (of 1760) there were most unusual numbers of wild pigeons here. In many places the woods where they rested for the night were ruined and the droppings were, here and there, shoe top deep."

Men went to the roosting places and killed 1,200 to 1,800 pigeons on a single hunt. "Pigeons go off in clouds," they said, and "trees that have withstood many a heavy storm fall to the ground beneath their weight.

The partridge or quail "small but delicate of flavor," were common. Turkey and duck, particularly wood duck, were "often numerous." Pheasant —the ruffed grouse—was described as "rare" but wild geese "come every year" and flocks of turtle dove were common.

Some of the more exotic birds and animals fascinated the Moravians. They noted that the whip-poor-will "calls only at night" and they commented on a curious squirrel which had "short wings like a bat."

Although the streams were filled with fish, a fact Spangenberg duly recorded, the Brothers spent little time angling for them. They caught their first fish in March, 1756 in the mill race at Bethabara. Later, whenever the mill pond was drained, they were on hand to capture the fish left floundering in the shallows.

In the Yadkin, which they said, "swarms with fish," there were pike, perch, eels, white fish, rock fish, or "cableau" and what they called "shott fish." They said there were sturgeon in the Roanoke and they noted that the carp, a fish which they knew in Europe, was not found in Wachovia.

Along with the varmints and the food animals and fish there were also the deadly ones.

In May, 1762 rabies broke out in Wachovia. "As a matter of precaution most of the Brothers and Sisters were bled."

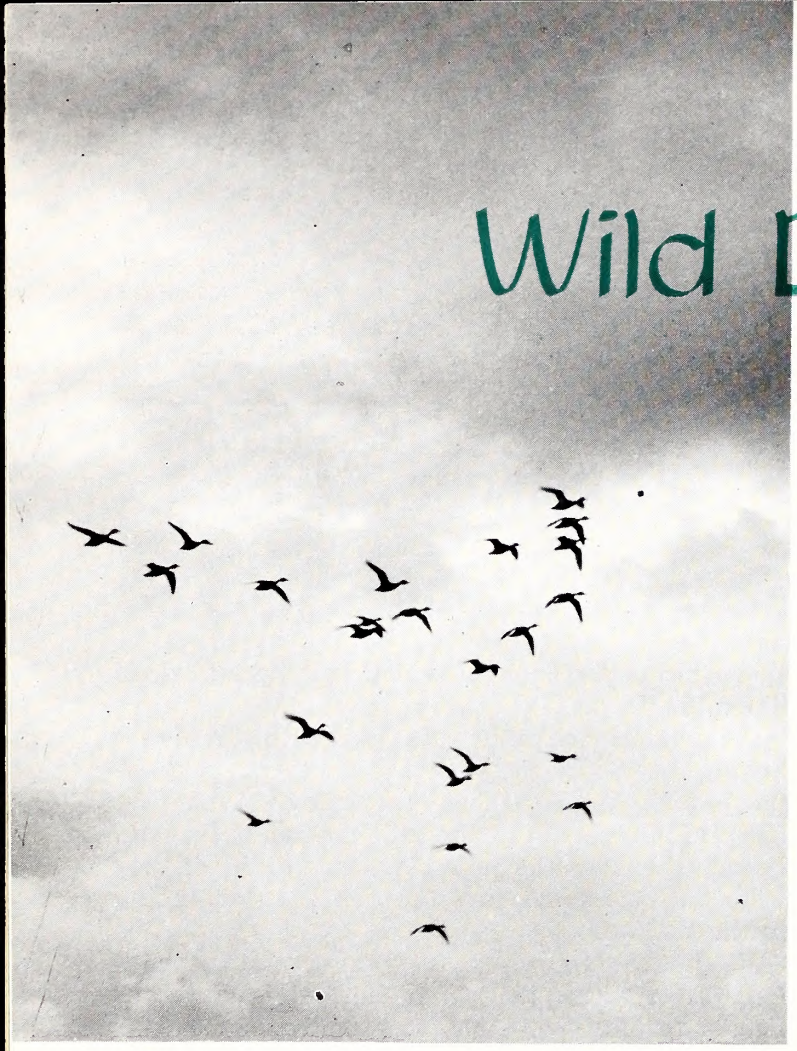
Worst of all were the snakes; the rattlesnake, copper snake and a snake they called the "pastoral" which, they said, "looks like a rattlesnake and its bite is just as bad but it has no rattle."

In 1770 one Brother wrote, "In our neighborhood many have been killed by snakes; in Bethania a medium sized rattlesnake coiled itself about a child's leg and one of the Sisters tore it away with her bare hands without receiving any injury and before it hurt the child."

So it was in those early wilderness days. Wild beasts meant danger and loss, perhaps, even death, but they also provided food and not a little pleasure to the Moravians. As they cleared the forest the life within the forest changed. Many species—the elk (gone before they came), buffalo, panther, wolf, beaver, bear and deer vanished from Wachovia. But there were others, the ones who lived comfortably with man like the quail, rabbit and mourning dove, which became more abundant.

These things they saw happen and they wrote of them in their records.

Wild Duck Travels



by Eugene Hester
Photos by the Author
Map by Duane Raver

EDITOR'S Note: During the summer of 1955, Dr. Eugene Hester, Zoology Department, North Carolina State College, spent nearly three months on the shores of James Bay, Canada, as a member of a waterfowl banding team. Readers may recall an account of his adventures which appeared in the November 1955 issue of Wildlife and the handsome beard Hester sported after months in the wilderness. Since 1955, Hester has received a report from the Fish and Wildlife Service every time the band of a bird his party banded was recovered. Here is his report to date.

FOR thousands of years, the annual migration of waterfowl has fascinated mankind and has been the subject of wide speculation. How, why, when, and where were questions persons interested in ducks and geese wanted answered. The information obtained in the beginning was very vague and general because there was no way of identifying individual birds. Later, birds banded on their legs with small, numbered aluminum bands began to unravel the great mystery.

There are still many gaps in our knowledge concerning migration, and banding is still an important phase of waterfowl research. In order to learn more about the movements of the waterfowl that spend their winters along the Atlantic Flyway, the Wildlife Resources Commission and North Carolina State College worked together during the summer of 1955 to send me to Canadian nesting areas to work with a banding team under the auspices of the Atlantic Flyway Council. During August and September, 343 young ducks and their parents were banded while the young were first beginning to fly. Species included black ducks, pintails, and mallards.

The movements of the ducks banded have been followed for more than four years now. Every time a hunter returns one of the bands, the date and location of the kill is recorded and plotted on a map. To date, 40 bands have been returned from widely separated places. Most of the ducks were killed along the Atlantic coast, especially in the area around Maryland, Delaware, and New Jersey.

Two pintails were killed in eastern North Carolina, one at Lake Mattamuskeet and one at Knott's Island Bay. Two other pintails were not content to roam the United States; one was bagged in Cuba and another in British Guiana, South America—about 4,000 miles from the nesting area and less than 2½ months after banding.

One pintail trapped during our banding operations already wore a band. A check of the number revealed that it had been banded at the same location during the previous year. It had returned to the same area to nest. A black duck banded by us in 1955 was retrapped by another crew during winter banding operations in Maryland—four years later. Both birds were released with the hope that their bands would be eventually returned to add more information about their travels.

Thus bit by bit, the unanswered questions concerning migration are being unraveled. An analysis of the accumulated banding and recovery reports through the years provides information on migration routes, the locations and extents of wintering and breeding grounds for various populations, mortality, and longevity—basic information vital for sound waterfowl management.

The 1959-60 waterfowl regulations, with reduced

bag limits and season, provides an example of how migration information is put to use. Through breeding grounds censuses, it was determined that waterfowl in certain areas had very poor nesting success. Banding data revealed where the ducks in the affected areas spend the winter. Thus, correlating nesting success with migration patterns, it was possible to predict the numbers of ducks and geese that could be expected to return to the wintering grounds on each of the flyways and hunting regulations were set according to the availability of birds.

Bird banding in North America is under the general direction of the United States Fish and Wildlife Service, with the cooperation of the Canadian Wildlife Service, and the Wildlife Resources Commission actively participates in the program in North Carolina.

The success of the banding program depends upon persons who report recovered bands. If you bag a bird wearing a band, send it to the Bird Banding Office, Fish and Wildlife Service, Laurel, Maryland, giving the date, location, and method of obtaining the band, along with your name and mailing address. In return, you will receive a report on where and when the bird was banded. The band will be returned to you for a souvenir if you request it. In addition, a report of recovery is sent to the person who banded the bird.

The tabulation below lists band recovery dates and locations for the black ducks, mallard, and pintails banded in 1955.

BLACK DUCKS

1955
Nov. 1; Long Island, N. Y.
Nov. 1; Burlington Co., N. J.
Nov. 4; Springfield, Ohio.
Nov. 18; Chincoteague Bay, Md.
Nov. 19; Maumee River near Toledo, Ohio.
Nov. 25; Muskingum River at Lukes Chute, Ohio.
Dec. 2; South Amboy, N. J.
Dec. 5; Lake St. Clair, Ont. Canada.
Dec. 7; Dixie Co., Fla.
Dec. 9; Brigantine, Atlantic Co., N. J.
Dec. —; Stafford Co., Va.
Dec. 31; Chickahominy River, Va.

1959
Mar. 23; Piney Creek, Kent Island, Md. (trapped and released).

PINTAILS

1955
Sept. 3; James Bay, Ont. Canada (trapped and released).
Sept. 17; Point Traverse, Ont., Canada
Oct. 2; Lake Poygan, Wis.
Oct. 15; Turkey Farms, Ont., Canada.

MALLARD

1955
Dec. 9; Porth Rowan, Lake Erie, Ont., Canada.
Oct. 22; East Pembroke, N. Y.
Oct. —; Grand River, Ottawa Co., Mich.
Nov. 3; Grand Ledge, Clinton Co., Mich.
Nov. 6; Lake Pontchartrain, La.
Nov. 12; Delaware Bay, Kent Co., Del.
Nov. 14; Lake Erie, Ont., Canada.
Nov. 18; Chincoteague Bay, Md.
Nov. 20; DeHoop, Demerara, British Guiana, S. Amer.
Nov. 26; Indian River, Fla.
Dec. 6; Homosassa, Fla.
Dec. 6; Manzanillo, Manzanillo Co., Oriente, Cuba.
Dec. 9; Dorchester Co., Md.
Dec. 21; Colleton Co., S. C.
Dec. 29; Lake Mattamuskeet, N. C.

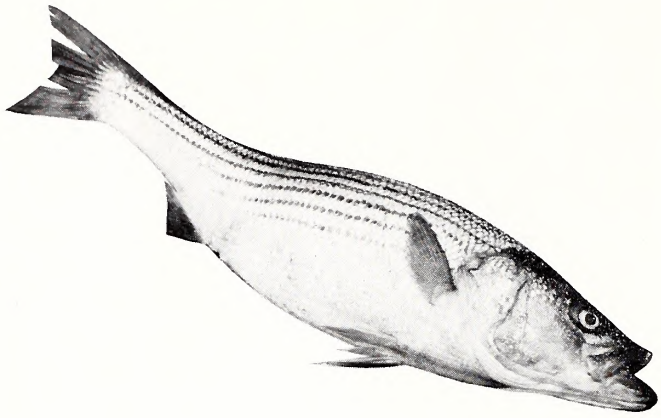
1956
Jan. 12; Titusville, Fla.
Oct. 6; Maquam Bay, Swanton, Vt.
Nov. 7; Fox Island, Accomac Co., Va.
Dec. 29; Bridgeport, N. J.

1957
Oct —; Mouth of Moose River, Ont., Canada.

1958
May 18; Patricia East, 133, Ont., Canada.
Aug. 2; Winisk, on Hudson Bay Coast, Ont., Canada.
Oct. 13; Thief Lake, Gatzke, Minn.
Dec. 24; Knotts Island Bay, N. C.

1959
Mar. 5; Mannington Meadows, Salem, N. J.

These pintails, shown inside a duck trap, were banded on the shores of James Bay, Canada. Some of them may be represented by symbols on the map below. The map shows the banding site and locations of band recoveries. See text for explanation on how data obtained through banding is used in management.



BATTLE FOR OXYGEN

by Frederic F. Fish

The "Battle for Oxygen" took place on the Roanoke River in North Carolina. At stake was a fishery resource worth millions of dollars, threatened by the loss of vital oxygen due to a new power impoundment upstream. The historic victory will affect future decisions involving fishery resources in Tarheel rivers and set a nationwide precedent in fish management — for the victory guarantees that fish can live in harmony with power production in the same stream.

IT all started back in the summer of 1956, when a water sample bottle was lowered over the side of a wave-tossed boat on the Roanoke Rapids Reservoir. It ended recently in the courtroom atmosphere of a Federal Power Commission conference in Washington, D. C.

The Wildlife Resources Commission—with the Department of Water Resources and the Department of Conservation and Development—signed an agreement with the Virginia Electric and Power Company on November 18. Thus ended one of the most significant battles ever fought in the history of fisheries management.

As far as the Wildlife Commission's interests were concerned, the outcome of the battle guaranteed for the first time in history that the preservation of fish habitat, through the maintenance of a minimum water quality, would become an integral part of the development of a river basin. And, as a footnote to this precedent-setting agreement, this was done by a likewise unprecedented revision of an existing Federal Power Commission license to maintain water quality.

At issue was a request for a Federal Power Commission license by the Virginia Power and Electric Company to construct Gaston Dam on the Roanoke River. The dam is to be built between the existing John H. Kerr Dam, operated by the U.S. Army Corps of Engineers, and VEPCO's Roanoke Rapids Dam near the city of Roanoke Rapids.

Although the proposed dam site is located some 145 miles upstream from the mouth of the Roanoke River, if the battle had been lost the effects could have been felt by fishermen all the way from Roanoke Rapids to Manteo. Fortunately for fish and fishermen, the battle was won.

The "Battle of the Roanoke" was, purely and simply, a battle for oxygen—that colorless, odorless gas without which no human can survive for more than a few seconds. Neither the Wildlife Resources Commission nor its sister State agencies ever objected to the construction of the dam itself. From the very start, the only demand made by the State agencies was that if Gaston Dam were constructed. VEPCO must provide the *least* quantity of dissolved oxygen that existed prior to VEPCO's appearance on the river.

Warfare has its own language. Let's pause and look at some of the terms used in the Battle of the Roanoke, because many of these words are essential to an understanding of the issues at stake.

Oxygen—normally a gas—dissolves in water just as salt or sugar. In lakes and ponds most of the oxygen dissolved in the water came from microscopic plants called *algae*. Through an amazing complicated process known as *photosynthesis*, these plants release free gaseous oxygen as a by-product of manufacturing their food from carbon dioxide and water in the presence of sunlight.

Since few pond algae can thrive in running water, most of the oxygen in creeks and rivers has been dissolved directly from the atmosphere as the water traps air while tumbling over rocks and other obstructions.

Without dissolved oxygen in the water there could be no fish or other aquatic animal life. For convenience in measuring this essential ingredient of water, oxygen is discussed in terms of *parts per million*—abbreviated *ppm*—which represents the number of pounds of oxygen in a million pounds of water, or in actual pounds per day or other period of time.

Decomposition of rotting material removes dissolved oxygen from the water. The complex process of decomposition is performed mostly by *bacteria,* microscopic animals that devour dead plant and animal life and, in their own peculiar way, breathe oxygen just as do all animals. The more organic matter you have, the more bacteria will thrive and the more oxygen they will consume. The rate at which domestic sewage or organic industrial wastes are poured into a body of water can be measured in terms of how fast the oxygen is used up by the ever-present bacteria in decomposing these wastes. This is called the *biological oxygen demand,* abbreviated *BOD, and* is expressed in pounds of oxygen consumed.

Decomposition of organic matter takes place in the depths of an impoundment, as water-borne leaves and other debris sinks to the bottom. Thus a reservoir will rob the water of its vital dissolved oxygen just as surely as does sewage or industrial wastes.

In the battle of the Roanoke many individuals—and some newspapers—assumed that the State was against the construction of Gaston Dam. The true basis for the agencies' objections was dissolved oxygen. Even after waste treatment facilities are provided, the river must carry a heavy load of oxygen-demanding substances and the new impoundment easily could have tipped the oxygen balance past the point where fish can live. So, the State agencies demanded that VEPCO guarantee the minimum oxygen that existed before Roanoke Rapids Dam was built, for the entire pollution abatement program was based upon that quantity being available at all times.

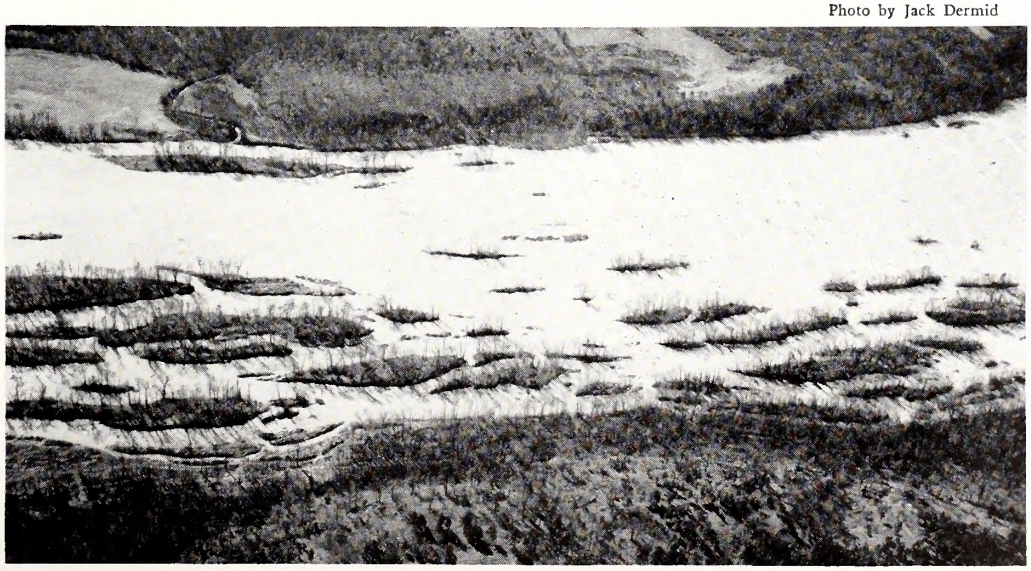
The State agencies did not demand the total quantity of oxygen present on week days before Roanoke Rapids—they did not even ask for the average quantity—all they requested was the minimum. VEPCO would not guarantee this, and the battle was on.

In 1953 the Roanoke River carried about 85,500 pounds of oxygen each day under the NC Highway 48 Bridge near Roanoke Rapids. This was with a weekday minimum river flow of 2,000 cubic feet per second. When the State Stream Sanitation Committee examined the river, they determined that the best future use of the section downstream was and should be the support of fish life. They thus classified the river as Class C water and designed a pollution abatement plan that required all of the pollutors to clean up enough so that a daily oxygen poundage of 78,000 at the Highway 48 Bridge would stabilize the treated wastes. This would take care of industries and municipalities downstream, and allow a reasonable oxygen reserve for future growth of plants and communities. It would still preserve at all times the all-important minimum oxygen concentration required by the fish.

Following the construction of the Roanoke Rapids Dam, the dissolved oxygen in the river averaged only 65,800 pounds per day at the 2,000 cubic feet feet per second flow. That was a serious reduction from the 85,500 pounds per day that were present before the Roanoke dam was built, and it was not sufficient to support the Stream Sanitation Committee's pollution abatement program.

Had oxygen not been considered in the construction of the Gaston Dam, the daily poundage could have easily fallen far below that necessary to support fish life. A minimum of at least 4 part per million of dissolved oxygen is necessary for fish to live; and had the Gaston project been permitted to reduce further the oxygen poundage you might have said goodbye to the rockfish populations that come

Photo by Jack Dermid



These rapids at the head of Roanoke Rapids Reservoir are near the site of the proposed Gaston Dam. The new dam will occupy nearly all of the river basin between the headwaters of Roanoke Rapids Reservoir and the base of the John H. Kerr Dam, approximately 35 miles up the Roanoke River. The Gaston project is well above the area where annual spawning runs of migrating striped bass provide most of the young rockfish for the Albemarle Sound area, but Gaston's effect on water quality could be felt for many miles down the stream. The new dam will provide a vast recreational area for thousands of North Carolina and Virginia sportsmen.

to Weldon each year to spawn. The rapids above Weldon are spawning grounds for nearly all the striped bass in vast Albemarle Sound. The fate of this vast fishery depended on oxygen released from upstream impoundments.

The State of North Carolina, through the Attorney General's Office acting on behalf of the agencies concerned, intervened in VEPCO's application for a license to build Gaston Dam.

After much negotiation, VEPCO finally said in effect, "We will not guarantee to hold the oxygen present at all times at the rate of 78,000 pounds per day—but if you will let us default on this rate down to one not less than 50,000 pounds per day for as long as 14 hours, we will then restore the 78,000 pounds per day by large releases of water as we generate power during the following two hours. Over each 16-hour period, therefore, you will have an *average* poundage of 78,000."

Below is Roanoke Rapids Reservoir, nine miles long. This impoundment has also affected dissolved oxygen in the river, but revised flows should assure adequate oxygen in the future.

Photo by Jack Dermid

The purpose of a hydroelectric dam is to generate power. Water stored in the reservoir is the equivalent of energy stored, and the power company wants to release water only during the periods when a demand exists for power. VEPCO's operating plan would permit much more efficient use of the river water, since they could withhold water when their system demand for peaking power was low, and then release more water when demand picked up.

The plan might protect the stream classification standard—but no one could say for sure. It was perfectly evident, however, that if it didn't work, the fish would be the heavy losers.

Realizing that fish die but once, the Wildlife Commission could not accept such a gamble on behalf of the people of North Carolina—particularly after extensive computations showed that the risk of failure was too high, no matter how reasonable the proposition sounded.

The Wildlife Commission and the other State agencies took the position that their objections to the Gaston Dam would be withdrawn and the operating rules accepted *on the condition* that the Federal Power Commission license carry the stipulation that VEPCO would restore the necessary oxygen up to 78,000 pounds at all times if the proposed operating rules failed to deliver the oxygen necessary for fish protection under the Stream Sanitation Class C standards.

The State agencies want to see the hydroelectric potential of the river developed, but not at the cost of clean waters capable of supporting fish.

On November 18 an agreement was reached between the Attorney General's representative and VEPCO's legal staff on the exact wording of the guarantee clause of the license. The State Stream Sanitation Committee promised its full support in protecting the oxygen level, for fish life so the Wildlife Commission then gave the construction of Gaston Dam its qualified blessing.

The agreement requires modification of VEPCO's present Roanoke Rapids Dam license, to assure adequate water quality from the lower impoundment into the river.

Thus ended a most unusual, as well as a most significant, fisheries investigation. Unusual in that during the course of the long study which provided the basis for the argument not a single fish was touched—the tools of the investigation were oxygen bottles, burettes and a calculator; not the conventional boots, seines, and measuring boards. Significant in that for the first time in history a Federal Power Commission license for hydroelectric development of a river will carry the written requirement for not just a minimum quantity of water—it also carries the guarantee of adequate water quality that will enable fish to live in harmony with power generation in the same river.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

1959-60 Hunting Season One Of Best

Considered on a statewide basis, the 1959-1960 hunting season in North Carolina has been one of the best in many years. This was especially true of upland game. Canada geese were plentiful in most areas, but there was a shortage of ducks, especially canvasbacks, redheads and ruddys. Small game was particularly abundant in all but a few isolated areas. One of the biggest big game kills on record was reported. The big game kill was augmented by the legal taking of antlerless deer in certain specified areas.

Wildlife Habitat Materials Ready for Free Distribution

The Wildlife Commission is ready to distribute 8,250,000 shrub lespedeza and 3,000,000 multiflora rose seedlings free of charge to persons wishing to develop land for farm game. This is an increase over last year's production. In addition to seedlings there are 15,000 five-pound units (37 tons) of annual seed mixture and 10,750 three-pound units (16 tons) of sericea lespedeza seeds. Applications for these materials may be made to the Commission's office, Box 2919, Raleigh, from district Soil Conservation Service offices, county extension agents, or district game biologists. The materials are free of charge, and will be distributed on a first-come-first-served basis.

Drexel Furniture Company Still At Drexel

In reporting that the Drexel Furniture Company had purchased more than 2,000 subscriptions to *Wildlife in North Carolina,* we inadvertantly listed the address of the Company as Hickory instead of Drexel. This will in no way affect the addresses on the subscriptions.

Migratory Game Bird Season Closes in January

The waterfowl season in North Carolina, of so-so success this year, closes January 8. The second segment of the dove season that began December 11 ends January 15. Best late-season dove shooting was found in the Coastal Plains, with a few scattered birds in the Piedmont.

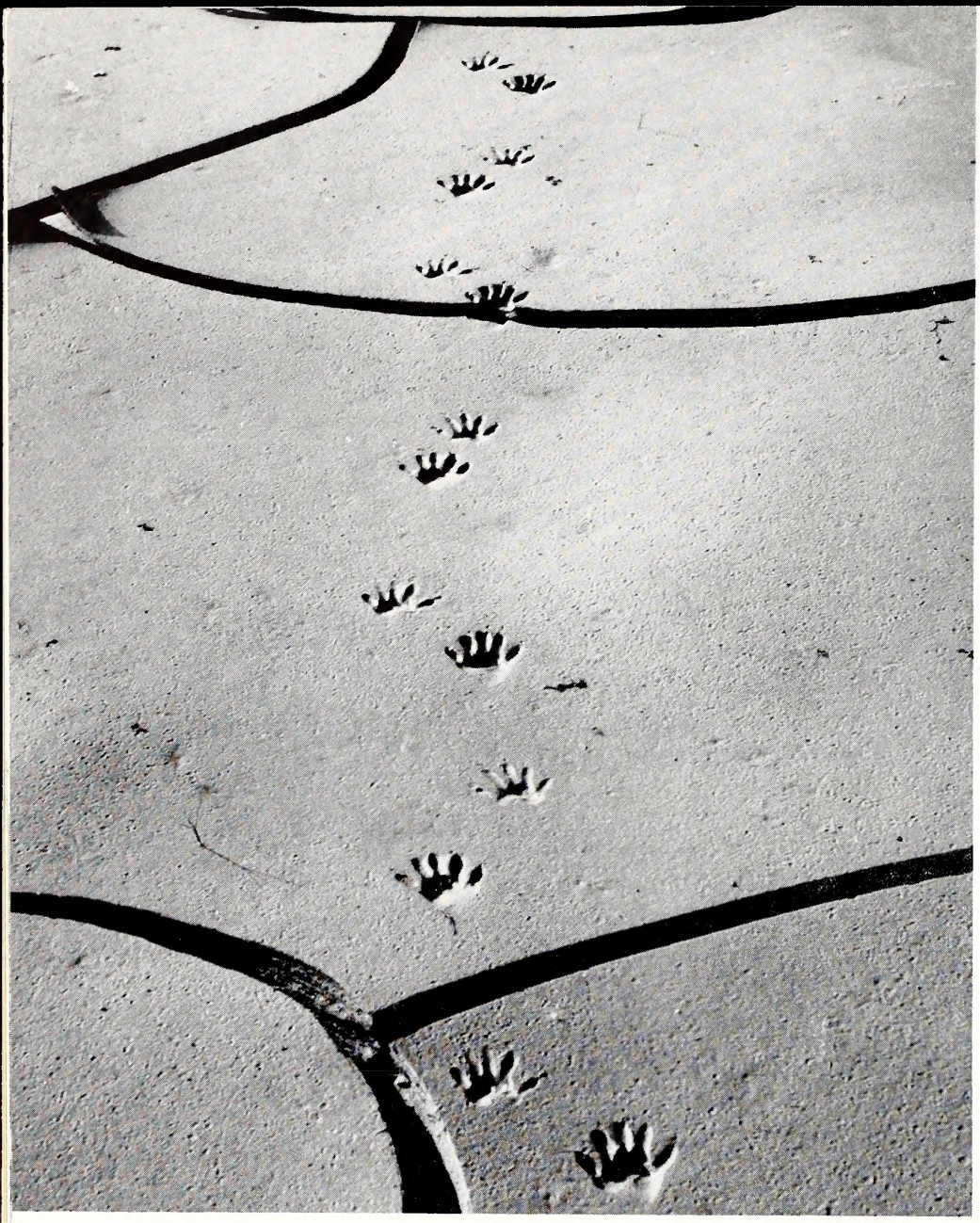
Boating, Fishing Fees Due

On New Year's Day North Carolina's Boating Safety Law went into effect, requiring owners of boats powered by more than ten horsepower to have their boats registered and numbered. On the same day the 1960 fishing regulations go into effect and 1959 fishing licenses become invalid.

The Trapper's World Of

ANIMA

Photos



RACCOON. The trail of a raccoon gives a pictorial accent to a pattern made by drying mud. Few tracks are as distinctive and easy to recognize as those of the coon.

IF it were not for tracks, droppings, toothmarks, and other records of the movements of furbearers, the setting of traps would be a haphazard venture indeed. Trapping would not be worth the effort. But the successful trapper knows how to read and understand animal signs. They tell him where a mink travels along a stream or where a muskrat has built its home, and he sets his traps accordingly.

The easiest of all animal signs to find and recognize are tracks. They are the signatures of animals passing over sandbars, mudflats, and fields of snow. They identify their maker, and knowledge of tracks is the first step in learning to trap.

The identification of perfect tracks, such as those pictured here, is not difficult. But nature does not always record a perfect track. Many times only a portion of an impression is clear or the tracks have been partly obliterated by rain or blowing sand.

SKUNK. The skunk is flatfooted like the raccoon, but the toeprints are noticeably shorter. Front tracks show long claws.

MINK. Although the mink has five toes on each foot, a typical track shows only four. Tracks are about 1⅜ inches long.

TRACKS

Wilson
ist

MUSKRAT. Only four toes show in the track of front foot. Also look for tail drag.

BOBCAT. Tracks without claw marks and somewhat rounded. Larger than house cat.

Then tracking becomes a real challenge, and it takes an experienced and discerning eye to call them by name.

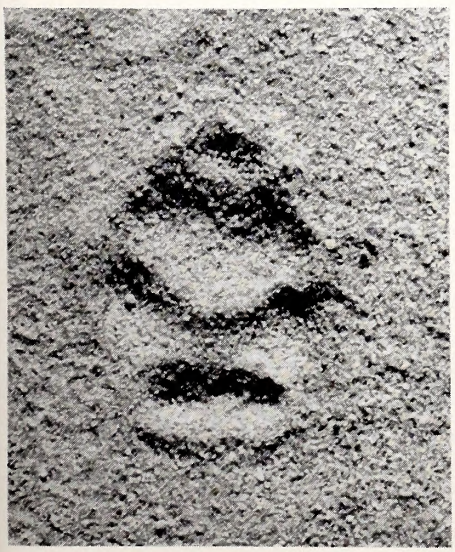
The interesting world of animal tracks does not belong to the trapper alone. Every outdoorsman will find that a knowledge of tracks will add to his enjoyment in the field and give him a better understanding of wildlife. For more information about animal signs, see A Field Guide to Animal Tracks by Olaus Murie. It contains 300 fact-filled pages and detailed illustrations.

The photographs on these pages are reprinted from Trapping North Carolina Furbearers by Kenneth A. Wilson, a Commission publication designed to teach youngsters how to trap, which won a national award from the American Association for Conservation Information as the best non-technical bulletin produced by a state conservation agency in 1958.

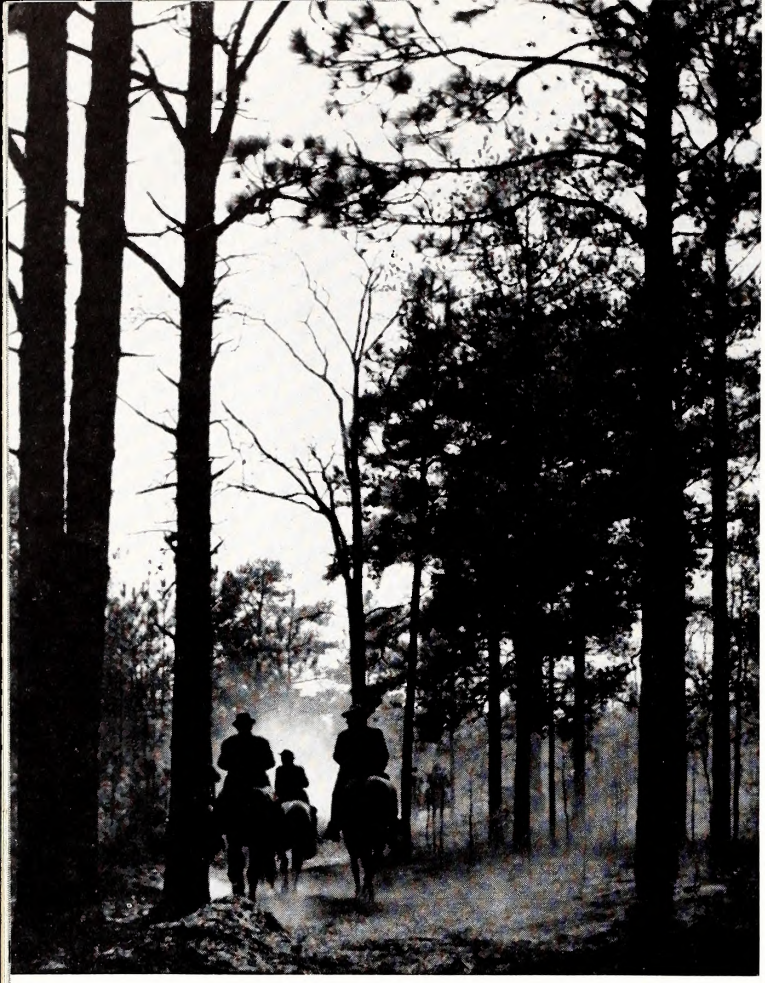
OPOSSUM. The inward or backward pointing "thumb" on the hind feet is his mark.

OTTER. Track is similar to that of mink, but much larger. A typical gait is shown.

RED FOX. The print of the heel pad with its transverse, arched bar is distinctive.



GRAY FOX. The print of the heel pad is heavier and lobed. Compare with Red Fox.



Photos by Jack Dermid

North Carolina's FIELD TRIAL AREAS

by Ted R. Mitchell
Supervisor, Central Refuges

ASK any real sportsman for his definition of an ideal hunting trip. If he is an owner or admirer of fine hunting dogs, be prepared for a lengthy discourse on the importance of good dog work, and its contribution to the enjoyment of a trip afield.

A full bag of quail is small consolation when Old Sport has a bad day and "bumps" every covey he encounters. Rabbit stew in the offing isn't as appealing to the appetite when those eager little beagles fail to bring the cottontails around to the gun. Nor is it easy to discount the loss of sleep, while sitting on a hillside in anticipation of rare music, when that good fox pack decides that the night is better for investigating strange scents than for "lining" br'er fox.

But just let any of these canines turn in a spectacular—or even workmanlike—performance! Mr. Sportsman is more than apt to chalk up that particular hunting trip as a Grade A, howling success —even though his game bag may resemble Mother Hubbard's cupboard. This is sportsmanship, and long may it live!

The pursuit of game with gun and dog always has been a traditional sport in the Southeast. Until recent years, most sportsmen have been fortunate enough to find hunting grounds on privately owned land. However, intensive use of agricultural land and the demand for residential and industrial sites by a rapidly increasing human population have drastically reduced available hunting areas in many sections of North Carolina. Small game populations have withstood human encroachment remarkably well.

Much credit for this happy circumstance is due to farmers who practice modern land-use methods and accept game management as an integral part of good land management. However, the most optimistic sportsmen realize that future game populations cannot supply the demand for hunting unless a policy of "use without abuse" is accepted by the hunting fraternity.

Working toward this end, many sportsmen who own hunting dogs are turning to a long-established and increasingly popular sport, field trials. Field trials for bird dogs, beagles, fox hounds and other breeds offer the finest in outdoor recreation. They also provide an opportunity to learn first-hand how one's own example of "man's best friend" stacks up in competition, and under professional judgment.

Because no game is taken in field trial events, the sport is a shining example of "use without abuse." Well-planned and managed field trial grounds usually sustain game populations adequate for holding several meets during the course of a year. Then, too, the overflow of game from unhunted trial grounds helps to increase the population of adjacent hunting areas. Thus the cause of wildlife conservation, restoration, and wise use is served.

The North Carolina Wildlife Resources Commission was among the first game management agencies in the Southeast to recognize the potential of field trials as a means of utilizing a limited natural resource to the fullest extent. In keeping with its motto "More Sport for More People—Equal Opportunity for All," the Commission has established and developed separate areas for bird dog, beagle and fox hound trials.

The Commission accomplishes two purposes when it invests in facilities for field trial areas. First, by using the game present for the enjoyment of many

North Carolina State Library
Raleigh

participants and spectators, a limited supply of game serves a large number of sportsmen. A second and further benefit from the expenditures is the development of farm game demonstration areas, where habitat improvement practices are tested and proven. Sportsmen who have seen the abundance of game produced under proper management are able to carry their lessons home to apply on local areas throughout the state.

Modern club houses, dog kennels and horse barns have been built and maintained for bird dog and fox hound devotees. A combination dog kennel and horse barn was constructed, and approximately one-hundred and fifty acres of land fenced to provide suitable trial grounds for beaglers. Game habitat development and maintenance are practiced by the Commission on each of these field trial areas. Game populations are considered to be highly adequate and near maximum for the type of soil and habitat involved.

Successful trials have been held on all of these areas during the past several years. State and regional championships have been awarded as a result of some of these trials. More and more Tarheel field-trialers and their guests from other states are enjoying the sport each year.

Facilities are not all that the Commission has supplied. Game Division biologists and refuge personnel have long been active in helping groups conduct trials and in developing club grounds. Local clubs have secured wildlife food and cover planting material for their grounds through their district biologists. Refuge personnel have assisted clubs in conducting trials on State-owned areas. When the writer was assigned as supervisor of central wildlife management areas, one of his responsibilities became that of coordinating Commission participation in field trial club activities.

The Caswell Wildlife Management Area has become a center for fox hunting enthusiasts. As many as 350 fox hounds may be entered in the Fox Hunting Association's annual field trials.

In a recent evaluation of its field trial program, the Commission checked with other Southeastern states to determine the extent to which they provided field trial facilities for their sportsmen. Following is a resume of data from eleven states within the region surrounding North Carolina:

Bird Dog Field Trial Areas

Of the eleven Southeastern states surveyed, only four stated that they provide special bird dog field trial grounds. One other state allows field trials to be run on a state-controlled public hunting area, but these trials are restricted to before and after the open hunting season.

Three states require field trial clubs to obtain written permits before running trials during closed season for quail hunting. Two of these states do not provide trial grounds. Only three states assist field trial clubs in constructing their own facilities,

Refuge Manager Lyle Morgan examines a planting of milo on the Sandhills Wildlife Management Area, where demonstration plantings on the refuge show the value of small game foods.

The Lexington Beagle Trial Area provides rabbit-hunting enthusiasts with a fenced area for beagle competitions, with demonstration plantings of small game food and cover on the area.

such as club houses, kennels and horse barns. Funds, materials and labor are contributed by the clubs and the state game agency.

Only four states practice game habitat improvement on their field trial grounds. In lieu of habitat development one state provides and maintains artificial quail feeders. Three other states, which *still* operate game farms, contribute a limited number of pen-reared quail for recognized field trials.

North Carolina has a centrally-located bird dog field trial area on the Sandhills Wildlife Management Area near Hoffman, where any field trial club can hold competitions at any time during the year, free of charge. Fields and borders along the more than thirty miles of course have been developed as a show-place for wildlife habitat improvement. Facilities include kennels and horse barn, and a combination show barn and club house.

Beagle Field Trial Areas

Only three of the surrounding eleven states provide special beagle trial areas. None of the three is fenced. They vary in size from 150 to 4,000 acres.

Only one of the eleven states provides any type of facility other than grounds—and in this case, beaglers are allowed to use an equipment building during the trials.

Only two states plant food and cover for rabbits on beagle trial areas. The contribution of another state, which operates a game farm, consists of a maximum of four dozen rabbits annually to each recognized field trial organization.

North Carolina's beagle trial area near Lexington includes a 150-acre fenced tract within a 400-acre field trial area. The entire area has been made a demonstration area for habitat improvement, with plantings of grass and clover, shrub lespedeza, and multiflora rose as well as brush piles and bramble patches. Facilities for the use of beagle trial sportsmen include a combination clubhouse and kennel building. Organized field trial clubs use year around the building and grounds without charge.

Fox Hound Field Trial Areas

No other state provides special field trial grounds for fox hound trials. No facilities such as club houses or kennels are provided by these states. One state does allow fox hound trialers to use dog kennels on their bird dog field trial area. One state contributes $300.00 annually to the state fox hunters association.

North Carolina provides a kennel building and combination clubhouse and show building at the Caswell Wildlife Management Area in Caswell County for fox hound field trials on the 8,000-acre tract. The area has been under development for small game, and fox populations are excellent without special management. The area is open year-round without special fees.

In comparison with other Southeastern states North Carolina is considerably in the lead. And North Carolina does not plan to rest on its laurels. Tarheel sportsmen will see additional developments on field trial areas in years to come, as the upswing in field trial interest continues. Progress may not be apparent overnight, since funds are limited and the field trial area program of the Commission is only a small part of the overall game program. Field trial enthusiasts may rest assured, however, that the Commission will continue its interest in the areas.

Headquarters for numerous field trials on the Sandhills Wildlife Management Area is this combination barn and kennel building, located in the center of the 30-mile field trial course.

John Savage Given Regional Honor

JOHN D. SAVAGE, Granville County Wildlife Protector, was given a citation and a $50.00 cash award at the annual meeting of the Southeastern Association of Game and Fish Commissioners. The protector received the honors while a guest of the association which met October 27 in Baltimore.

Savage is the second District 5 protector to be honored in recent months. Raymond Allen, Caswell County protector, was recognized by the N. C. Wildlife Federation for his off-duty activities with scouts and other groups. The Southeastern Association citation was given to Savage for his accomplishments while on duty.

The association's law enforcement section recognized twelve protectors from member states at the Baltimore meeting.

Savage, a native of Hobgood in Halifax County, still carries 51 shotgun pellets under his skin—the result of an encounter with a pre-season squirrel hunter. Savage was commended at the time for his courage and judgment in the case, when he refrained from using his own weapon after being seriously wounded by the violator. The protector was shot twice before he disarmed his assailant.

Wildlife Protector John D. Savage

Savage is a graduate of Scotland Neck High School, and served during the Korean Conflict as a Navy radioman. After a four-year period in the Navy he worked for three years as telegraph operator for the Atlantic Coast Line Railroad.

The protector was employed in October 1955 as a trainee in Hertford and Bertie counties following graduation from the Wildlife Protectors' Training School at Chapel Hill. Savage was transferred to Granville County in August 1956 as county protector. He now lives in Oxford with his wife and two daughters.

PROTECTOR OF THE MONTH

Roy Wayne Beard

Buncombe County Wildlife Protector Roy Wayne Beard was born in Bryson City on March 22, 1927. He attended grammar school and high school in Swain County. During World War II, he was with the U. S. Navy. He was also formerly employed as a fire control aid at the Great Smoky Mountain National Park in Cherokee, N. C.

Mr. Beard attended the Wildlife Protectors' Pre-Service Training School in 1954, and has also attended the 1958 and 1959 In-Service Training Schools for Wildlife Protectors at the Institute of Government in Chapel Hill. He was appointed Buncombe County Wildlife Protector on October 1, 1954. He is a member of the Southeastern Association of Game & Fish Commissioners, as well as the N. C. Association of Wildlife Law Enforcement Officers.

Mr. Beard is married to the former Mary Frances Jacks of Bryson City, and they reside in Asheville.

ENFORCEMENT RECORD FOR OCTOBER

Persons checked	31,374
Total prosecutions	419
Total convictions	403
Total cases not guilty	8
Total cases nol prossed	8
Total fines collected	$2,812.00
Total costs collected	$2,940.90

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Is a special hunting license required of a person who hunts in a controlled shooting preserve?

ANSWER: No special hunting license is required for hunting in controlled shooting preserves. There is, however, a special $5.25 controlled shooting preserve license, which can be used either by residents or nonresidents in the place of the regular North Carolina hunting license. This special license, however, can be used only on controlled shooting preserves and is not valid elsewhere.

THE SKIPPER

Meet Skipper

Hi! Come aboard and take a spin with Skipper. Whether you pilot a 26-foot cruiser, a 12-foot hull pushed by a five-horse kicker, or simply like the water and boats, you'll enjoy Skipper's company. He's Mr. Average Boater with an address of just about anywhere in the Old North State. He likes boats and motors and just plain being out on the water. Skipper is curious about the new Boating Safety Act and is ready to learn more about it along with you. You will see him frequently in this section of WILDLIFE IN NORTH CAROLINA, and his picture will crop up on posters where boat number applications are available. Skipper likes to "play safe", knows his boats, the water, weather and how to get where he is going and get back safely. His sole purpose in life is to help you with your boating problems. Remember Skipper's advice: safe boating fun for you and your family is in your hands.

WILDLIFE COMMISSION SETS UP MOTORBOAT REGISTRATION SECTION

THE Wildlife Resources Commission's new Motorboat Registration Section is processing applications for certificates of number which have already started flowing into the Raleigh office. On December 1 it was estimated that over 1,500 had been received. The mechanics of this processing take special equipment and additional personnel. January 1, 1960, is the effective date of the new numbering system, and registration of boats powered by machinery of more than 10 horsepower is being speeded up as necessary tabulating equipment is delivered to the Wildlife Commission's office.

The Motorboat Section planned to be mailing the pocket-size certificate of number cards to applicants around January 1, 1960. If your application and $3.00 fee have been forwarded to the Wildlife Commission, you will receive your card bearing your boat's new number just as rapidly as possible. You won't receive a "license plate" or any numbers —the securing and placement of these is up to you. Just make sure the letters and numerals are block characters, and at least three inches in height. They may be of any color so long as they contrast with the background.

Along with your certificate of number card you will receive a copy of the North Carolina Motorboat Owner's Guide. It contains dozens of important questions and authoritative answers about the new law—things you should know.

THE QUESTION BOX

Your compliance with the new Boating Safety law is possible only if you understand all of its details. We're here to help you with your questions. In this spot we will print boating safety and registration questions and answers. Your question may very well be that of hundreds of other boat owners; let's have them!

Question: I have three small boats at my fishing camp and we don't use motors of more than 10 horsepower on them. Occasionally, however, friends use larger motors on these boats when we aren't at camp. Who is responsible in this case?

Answer: If the boats in question are used with motors of greater than 10 horsepower and such use is without the permission of the owner, the user and not the owner is responsible. However, if the boat owner allows the boat to be used with more than 10 horsepower, it is his responsibility to have the boat registered, even though the owner may never use or even own such a motor.

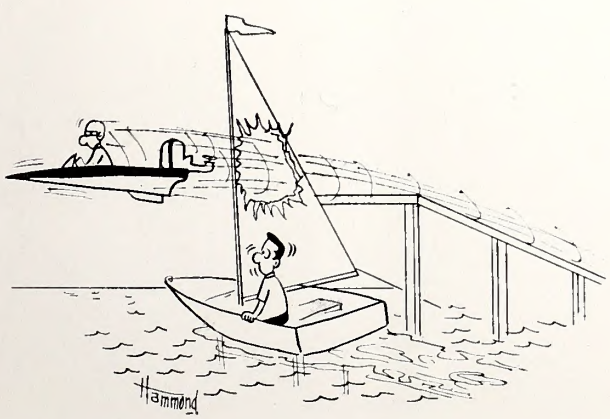
Question: My 26-foot inboard boat is now and has been registered with the U. S. Coast Guard. It meets all their requirements. Do I have to register it with the Wildlife Commission and what will it cost?

Answer: As of January 1, 1960, all motorboats (boats powered by machinery of more than 10 horsepower) will be registered with the Wildlife Resources Commission regardless of their present Coast Guard registration. A new number will be specified and the Coast Guard number will be invalid.

The registration fee for private individuals (not dealers or manufacturers) is $3.00 annually.

Question: Can I buy my boat license from a hunting and fishing license agent?

Answer: Certificates of Number (not "boat licenses") are available only from the Motorboat Registration Section, N. C. Wildlife Resources Commission, Box 2919, Raleigh, N. C., and from no other source. Applications for this certificate, however, can be obtained at any authorized hunting and fishing license agent, or from most boating dealers.



Sports Afloat Information

Pleasure boating will be safer and more fun for you and your family if you are a well-informed skipper. The Wildlife Resources Commission will keep you up-to-date on many phases of this, the fastest growing water sport. Information of real interest is also available from the Outboard Boating Club of America, 307 North Michigan Avenue, Chicago 1, Illinois; the American Red Cross, 1955 Monroe Drive, N. E., Atlanta 9, Georgia; U. S. Coast Guard, Commander 5th Coast Guard District, P. O. Box 548, Norfolk, Virginia.

Active in your area may be a unit of the United States Power Squadron. This organization is dedicated to the establishment of skillful boat handling, navigation, and safety. Their course is a rigid and a thorough one; check into it in your locality.

NUMBER	EXPIRATION DATE
NC-1234-AA	December 31, 1960

1. NAME AND ADDRESS OF OWNER

SKIPPER SPORTSMAN
1234 MAIN STREET
ANYTOWN, N.C.

2. OWNER'S DATE OF BIRTH	3. OWNER'S CITIZENSHIP	4. LENGTH IN FT.	5. YR. BUILT
2/22/22	U. S.	16	1952
6. MAKE OF BOAT	**7. PRESENT NUMBER**	**8. HULL MATERIAL**	
ZEE-ZEE	NONE	ALUM	
9. USE	**10. FUEL**	**11. PROPULSION**	
PLEASURE	GAS	OUTBOARD	

12. I(We) declare under the penalties prescribed in the General Statutes of North Carolina, to the best of my (our) knowledge and belief that I (we) own the vessel described herein and that the description and all matters stated herein are true and correct.

Sign Here ... Skipper Sportsman

BOAT REGISTRATION CERTIFICATE
N. C. Wildlife Resources Commission

This is the certificate of number that will be issued to each boat owner as evidence of his registration. The pocket-sized certificate must be available on the boat while it is being operated, to be shown to law enforcement officers on demand.

ACCESS AREA REGULATION RESCINDED

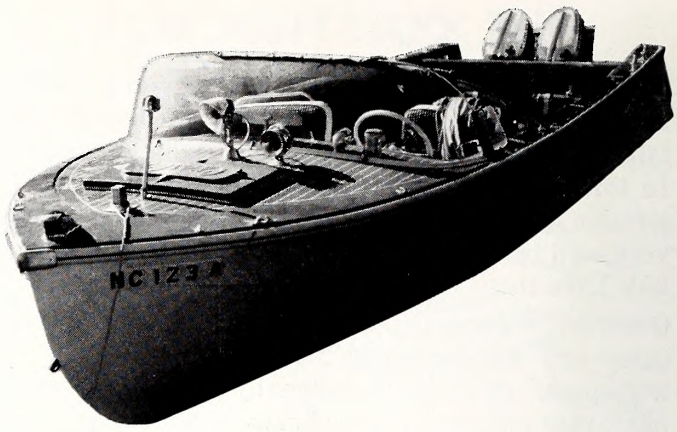
You can use the Wildlife Commission's fishing access areas without a fishing license or access area use permit, beginning January 1. The Commission rescinded the former regulation at its meeting on December 7.

The rescinded regulation required that users of Commission-owned areas have either a fishing license or a special access area use permit before launching their boats.

The purpose of the regulation was to assure that users of the license-financed areas would pay their fair share for construction and maintenance.

Another regulation, which prohibits parking on launching areas, will remain in effect. In the last year a number of prosecutions have been made for this violation, and wildlife protectors will continue to cite to court persons who park boats and trailers so as to obstruct launching ramps.

DOWN *through the* DISMAL



By Jim Lee

In years gone by the Dismal Swamp Canal was an important route for Eastern North Carolina products destined for Norfolk and the Chesapeake Bay area. Now a part of the Intracoastal Waterway, the historic canal no longer echoes the crack of teamsters' whips along the towpath but instead is a colorful cruise for thousands of pleasure craft.

Below the lock at South Mills, Turner's Cut leads to the winding Pasquotank River, which flows through the lower part of the Dismal Swamp.

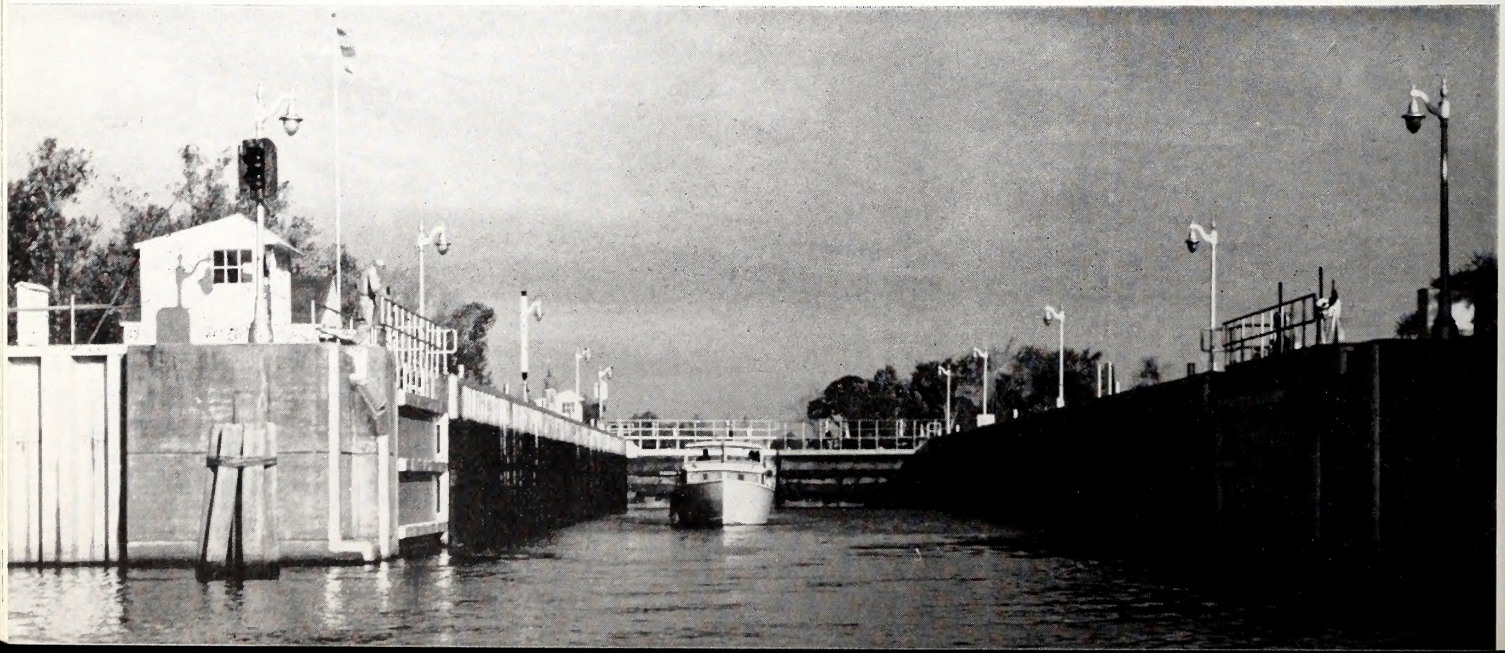
The entire route from Norfolk to Elizabeth City is sheltered so that small craft can make the cruise even when winds whip Albemarle Sound into whitecaps.

Let's follow the *Ranger* on its cruise along this famous stretch of waterway. The launching site was several miles north of Wallaceton, Virginia, at a make-shift ramp beside U. S. Highway 17. Captain and mate were Miles Hart and son Skip, of Raleigh.

ABOVE: For as far as the eye can see the Dismal Swamp Canal extends through the wilderness. Grunting oxen and mules once pulled barges from a tow-path now grown up in trees and vines.

BELOW: The lock at South Mills, operated by the U. S. Army Corps of Engineers, lowers boats from the level of the swamp to the river below. There is no charge for using the locks.

Photos by Jim Lee



Skip Hart of Raleigh pilots the Ranger as the outboard glides along the placid waters of the Dismal Swamp Canal. The boat was powered by twin 45's and equipped to cross open water.

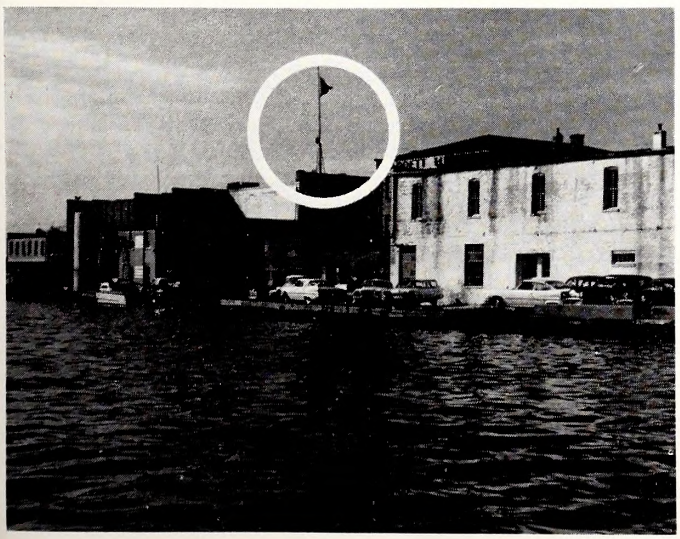
The *Ranger's* cruise came in early November with autumn colors at their peak. Along the canal rotting sheet piling still protects the banks, but a maximum speed of six miles an hour is required to prevent erosion.

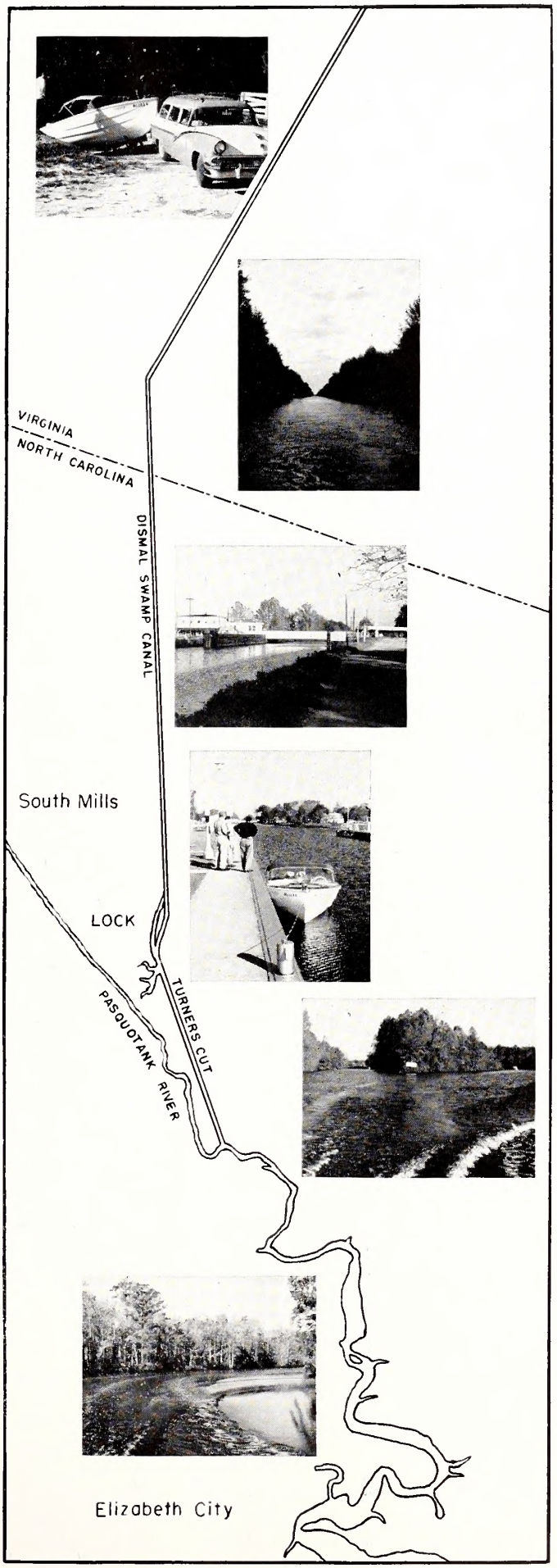
The lockkeeper at South Mills seems as willing to accommodate a 14-footer as a sleek yacht; the 18-foot *Ranger* went through with a cabin cruiser bound for Florida.

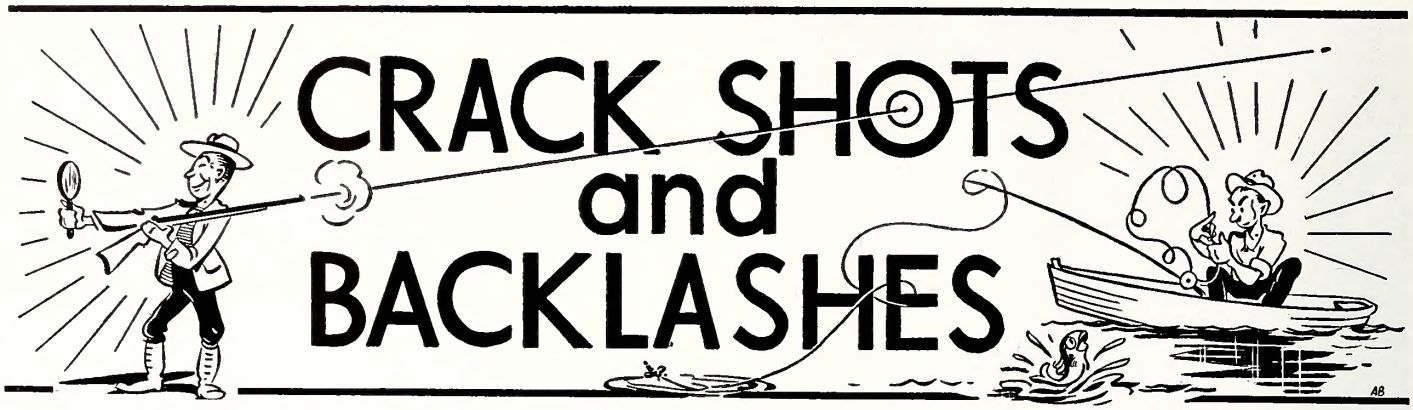
Below the lock the speed limit is increased to ten miles an hour—still slow enough for one to enjoy the vast swamp bordering Turner's Cut and the Pasquotank River.

The river broadens several miles above Elizabeth City, and channel markers appear to guide the deeper draft vessels past shoals. Around the last bend in the river is Elizabeth City, where the *Ranger* met small craft warnings that ended the trip.

A small craft warning (circle) on the waterfront at Elizabeth City called a halt to the Ranger's cruise. Stiff winds had made Albemarle Sound too rough for any but the largest boats.







DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Some months ago we reported that the 1959 session of Congress adjourned without providing the U. S. Coast Guard with funds to carry on small boat numbering in states not having their own boating law. This turns out to be not so. A last-minute bill was passed providing the necessary money. The erroneous report and the correcting report both came from an outboard boating news sheet.

* * * *

Wildlife in North Carolina now ranks one of the top in the country in total circulation. From August 10 to November 10 employees of the Commission sold 21,107 subscriptions, putting our total circulation above the 70,000 per month mark. Our thanks go to the people who did a wonderful job.

While we are dishing out thanks, we'd like to toss a few bouquets to the people who have contributed so much to "Crackshots" over the years. Without letters from our readers, this section would be dull indeed. We always like to get letters. When necessary, we reply immediately, but sometimes we can't. People forget to give us their return address. For instance a few weeks ago Jimmy Pounds, Route 2, wrote:

"If it isn't too much trouble, could you tell me how many bass and bream you would put per acre in a fertilized pond?" No trouble at all except that the envelope with the postmark got lost and we don't know which town mail on Route 2 is delivered from.

The recommended stocking rate for a fertilized pond is 1,000 bluegill (or 700 bluegill and 300 redear sunfish) fingerlings stocked per acre in the fall and 100 fingerling largemouth bass in the spring. This is the stocking ratio recommended by the U. S. Fish and Wildlife Service, from whom fish may be obtained free of charge through the Soil Conservation Service. Farmers' Bulletin No. 2094 on managing farm fishponds is available at most SCS or County Extension offices.

* * * *

A major victory has been won by the forces of conservation in the long battle between conservation and exploitation. For the first time in history water *quality* has become a factor in issuing licenses for the construction and operation of hydraulic power projects. The precedent was set by the Federal Power Commission in granting a license to the Virginia Power and Electric Company to construct the Gaston Dam on the Roanoke River. See elsewhere in this issue for more details.

John E. Cutshall

Waterfowl Shooting Hours

DEAR SIRS: I am writing this letter in regard to the RESOURCE-O-GRAM in the November issue of Wildlife.

You state that shooting hours are from sunrise to sunset. Why is this so stated when at Mattamuskeet hunters have to stop shooting one hour before sundown?

This county law is an irritation to the hunters this far inland. They have made many trips hunting to this lake only to see the game fly at 4:00 p.m. I would like to see something done about this law. JAMES F. YOST, SALISBURY

The shooting hours mentioned were for the statewide season. There are two exceptions. In Currituck County, as a regulation of the Currituck Game Commission, shooting hours end at 4:20 p.m. In Hyde County, by a local bill, shooting stops at 4:00 p.m. State and local governments can further restrict federal laws and regulations, but cannot relax them.

Raising Ruffed Grouse

DEAR SIRS: We here in the courthouse in Alexander County look forward to each issue of Wildlife and have debated and discussed many of the articles seen in it. We feel that this publication has done more than anything else to create interest and awaken the people of North Carolina to their responsibilities to protect and restore our wildlife, also to more fully appreciate the wide scenic variations in our beautiful state.

Have ruffed grouse ever been raised in captivity? If it is possible I would be very much interested in securing eggs or birds for repropagation purposes in this area. Please send any information you can on this subject. JAY CLYDE FOX, TAYLORSVILLE

Several attempts have been made experimentally by several states to raise ruffed grouse in captivity. Although experiments met with some success, no one has found a way to raise enough

grouse to stock them with any degree of success. Unlike most other gallinaceous (chicken-like) birds, ruffed grouse refuse to become domesticated. Since North Carolina's supply of grouse exceeds hunting pressure, no attempts have been made at artificial propagation.

Federal Waterfowl Regulations

DEAR SIRS: I am a subscriber to the magazine Wildlife in North Carolina and find the feature "Crackshots and Backlashes" very interesting and informing. There are several questions I would appreciate your comments on regarding waterfowl (ducks, geese) shooting. 1. To shoot waterfowl from a boat must the motor be removed from the transom or tilted out of the water? 2. In the case of one man hunting in a boat alone and with a 25 or 35 HP motor it is difficult to remove the motor from the transom. Would it be legal to leave the motor on the transom and disable it someway such as removing spark plugs or the propeller?

Federal regulations say: "Migratory game birds *may not* be taken from or by means of a sailboat or other boat or floating craft having a motor attached unless such boat, craft or sailboat is beached, resting at anchor, or fastened within or tied immediately alongside any type of fixed hunting blind, or is used solely as a means of picking up dead or injured birds." Nothing in the regulations provides for disabling the motor. The legality of such action would be up to federal or judicial opinion.

WILDLIFE does not often publish photos of game kills, but when five Raleigh hunters go still hunting and each bag a buck, that is news. They were Wiley Stephenson, Jim Brandon, Charlie Blevins, John Collins, and Warren Parker. They hunted in Granville County near Camp Butner opening day. Blevins' buck weighed 255 pounds.

Non-resident Complaint

DEAR SIRS: I have friends arriving from Iowa tomorrow so hope to be brought up-to-date on hunting conditions and the like out Iowa way.

My son is growing up and will be 13 come December 16. As I understand the hunting for my son is that if he is with me he is not required to have a North Carolina license. Naturally, I have nonresident license and then when he is with me he will be entitled to hunt in North Carolina. I'm sure this is right for many have told me of this arrangement. I would appreciate your writing me on this subject for I certainly want to get my son started right and in North Carolina too. The chances are that he will get to hunt with me three or four times during the season. GEORGE SKINNER, PORTSMOUTH, VIRGINIA.

Under North Carolina laws only residents of the state under sixteen may hunt without license and then only in the company of their parent or guardian; further, they can use the license of the parent or guardian and not be accompanied by either. We regret that this exception does not apply to nonresidents.

After receiving the above reply, Skinner wrote the following: "I am disappointed in your N. C. law pertaining to those under sixteen (nonresident). It is rather unfair and should be brought to the attention of the Commission. I expect to hunt approximately six or eight times this season, and want to take my thirteen-year-old probably once or twice. Perhaps the Commission has some reasons for this unusual setup. To which we reply: This is not a Commission ruling, but State law that has been on the books for years and years. The Legislature could amend the law to grant an exemption or a less costly license.

Wood Ducks

DEAR SIRS: Do you know where I could obtain some wood ducks to turn loose in the woodlands near my home?

There is a vast expanse of woodlands, and I would like to stock this area with wood ducks. JACK M. FREEMAN, FOREST CITY

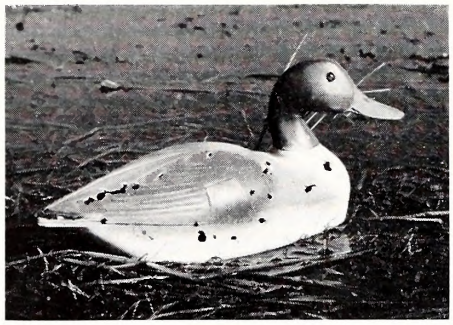
Although wood ducks are native to Tarheelia, they are migratory waterfowl. The odds against stocked birds staying in a given locality are tremendous unless their wings were clipped or pinioned. Many persons have been able to attract and hold wild wood ducks by erecting nesting boxes at suitable sites on woodland ponds or lakes. The birds are tree nesters. Clipping or pinioning wings would prevent them from getting access to nest boxes or hollow trees, and thus would defeat the purpose of stocking them.

Portrait of drake wood duck. The female will nest in homemade nesting boxes. Free construction plan will be sent on request.

Wildlife Calendar

Announcements of coming events are welcomed from wildlife clubs, field trial associations, and other organizations sponsoring hunting, fishing and boating activities of regional and state-wide interest. Club secretaries should mail complete information at least six weeks in advance of publication date to "Wildlife Calendar" Editor, Wildlife in North Carolina, Box 2919, Raleigh.

Jan. Small game hunts on many wildlife management areas. See managed hunt regulations for further details.
Jan. 1 Motorboat Safety Act effective.
Jan. 1 New fishing licenses on sale.
Jan. 2 Bear season closes statewide. Deer season closes in eastern counties. European wild boar season closes in far western counties.
Jan. 4 Woodcock season closes statewide.
Jan. 8 Duck, coot, brant and goose season closes statewide.
Jan. 15 Squirrel season closes in Piedmont and Western counties. Dove season closes statewide.
Jan. 22-24 Mid-Winter Skeet Championships, Pinehurst.
Jan. 29-31 Southeastern Brittany Club Field Trails, Pinehurst.
Jan. 30 Trapping season closes in central counties. See hunting regulations for full details.



When a flight of ducks swooped low before a Mattamuskeet blind, a decoy caught the charge broadside—and the ducks flew on.

WILDLIFE is used regularly in many schoolrooms. Here Brenda Baker, Wakelon School, Zebulon, identifies a bird nest.

Launching Sites on Roanoke

DEAR SIRS: I have a problem with which you can help by giving me some information.

I wish to move a boat from Kerr Lake to a point near Wilmington. Rather than move it by trailer, I wish to sail it from a point near Weldon down the Roanoke River. The boat draws 2½ feet.

Will I find a good launching site near Weldon, and will I find the river navigable from Weldon on down to Edenton for this boat? HENRY B. RASMUSSEN, DURHAM

There is a launching ramp at Weldon that might be suitable for launching your boat. We would suggest, however, that you look over the equipment provided there before attempting to launch your boat. Since your boat draws 2½ feet of water there is some doubt as to whether the winch and carriage is heavy enough to accommodate it. You should have no particular navigation problems from Weldon on down the river. This sounds like a most interesting trip and we would like to have an account of your adventure for the magazine.

Several years ago yours truly and Harry Cornell of our Fish Division ran the Intracoastal Waterway from South Carolina to Virginia in a 12-foot aluminum skiff with a ten-horse outboat motor. We used Coast Guard navigation charts, and found them to be excellent. Made the trip in three days and slept in hotels (Jefferson at Morehead City, Carolinian at Nags Head) both nights.

Skeet Clubs

DEAR SIRS: Being a new subscriber to your magazine I will say that I have enjoyed it very much and learned a great deal about wildlife that I didn't realize before.

I'm writing you for some information concerning skeet shooting clubs in this section of the state. If there is not one, how do you go about starting one? Are they privately owned or what—any information you can supply will be helpful. DR. D. R. WHITTEMORE, WILMINGTON

If you will contact Mr. Paul R. Jennewein, Wrightsville Beach, or Wilmington Star-News, I am sure he can tell you of many skeet clubs in your area. Most of these are cooperatively operated by sportsmen's clubs. Also there are a few commercial skeet shooting areas in the Piedmont section. Although skeet shooting may be a bit expensive, it sharpens the shooting eye.

Squirrel Bites

DEAR SIRS: Recently a friend of mine was attacked and bitten by a squirrel. What precaution should one take and what would happen if we dressed a rabid squirrel through mistake and ate it. How would we know if the animal had rabies? C. WAYNE CASHATT, THOMASVILLE

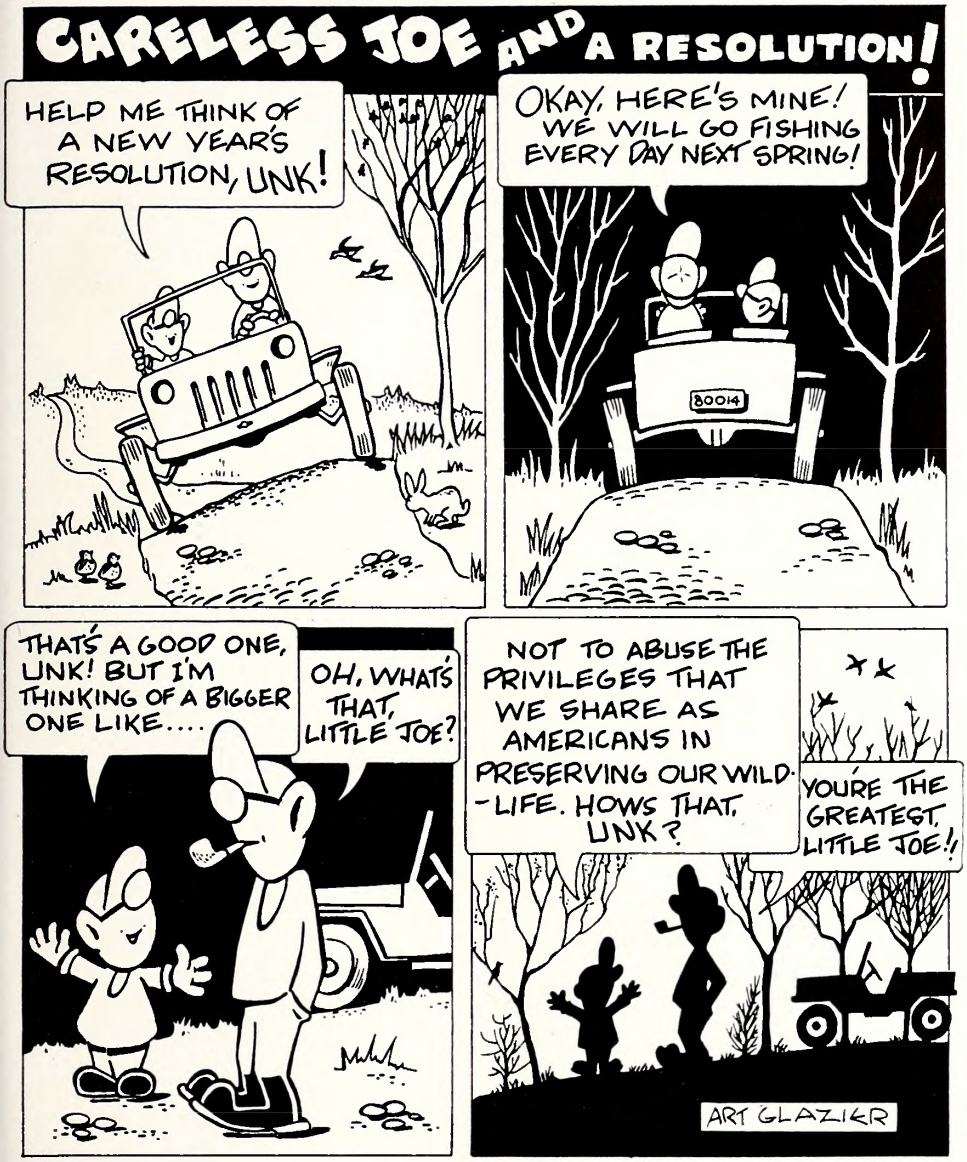
We do not know of any precautionary measure to take against rabid squirrels. There have been many occasions of people being attacked by squirrels which were not found to be rabid. Dr. Martin Hines, of the State Health Department, said that rabies may be transmitted to humans only through the introduction of the vector into the blood stream from the saliva of infected animals. There would be no danger in eating a rabid squirrel, but it is possible that the disease could be transmitted from the squirrel's blood into any open sore on the person dressing the animal.

Before and After

In April, this gas line right-of-way on the farm of Earl Lloyd near Hillsboro was prepared and planted with wildlife food and cover plants. In October, the annual food patch down the center was mature and the perennial shrub lespedeza along the edges well established — habitat that will now benefit quail and rabbits. Utility rights-of-way are excellent places for food and cover plantings, and the planting material can be obtained free from the Wildlife Resources Commission.

Soil Conservation Service Photo

Photo by Grady Barnes



English Sparrow Problem

DEAR SIRS: We here on the farm enjoy your magazine very much and we know that it is a fine thing for our out-of-doors minded North Carolinians. Although you do not specialize in solving problems of all types, we thought you might possibly have a suggestible solution to a problem like ours.

You can imagine the nuisance created by having nearly a thousand English sparrows roosting at night in two trees within several feet of your bedroom and directly over a parked car. It seems that about an hour before dark the sparrows from miles around start gathering in these two trees and we have tried to scare them off by various methods. However, they are more persistent than any method we can imagine.

If you know any way to rid our yard of this nuisance without stirring up the wrath of certain societies please let us know and it will certainly be appreciated. ROYCE RAY, WHITEVILLE

DEAR MR. RAY: This bird does become quite a nuisance with his excessive chattering and accompanying activities during the evening and early morning hours. Where this problem has arisen in other places a successful means of discouraging them has been by igniting firecrackers attached to the lower limbs and branches of the tree. And this has worked. Some success has been obtained by placing a stuffed owl up in the branches of the tree.

I believe that either of these two methods would be acceptable without stirring up the wrath of certain societies. WILLIAM L. HAMNETT, WILDLIFE EDUCATION REPRESENTATIVE

Hunting License Requirement

DEAR SIRS: I am 12 years old and like to hunt very much. I don't know whether I am supposed to have a license or not. Would you please tell me in the next issue of Wildlife. STUART GREENE, SHELBY

Resident persons under sixteen years of age do not need to buy a license. They may use the license of a parent or guardian, or hunt in their company. At age twelve, we strongly recommend hunting in the company of an older person.

Alligators

DEAR SIRS: I am a member of a club which owns a shallow lake in eastern North Carolina that is inhabited by alligators—some rather large. There is some difference of opinion as to whether the larger reptiles should be killed because they are a threat to members of the club who use the lake.

Please inform me whether our North Carolina alligators are considered dangerous to man. Is there an authentic record, to your knowledge, of an alligator having attacked, injured or killed a human being in the state or the southeast?

I feel that the alligators add greatly to the interest of this camp and that it would be a great shame to kill them without good reason to believe that they may do harm. JAMES S. LEWIS, JR., GOLDSBORO

We don't have any records on alligators attacking people. Maybe some of our readers know of authentic incidents. Alligators are an interesting and romantic part of our North Carolina scene, and we believe they should be protected.

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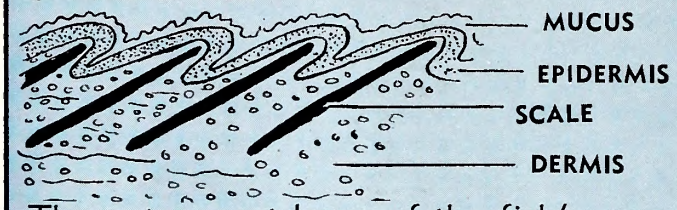
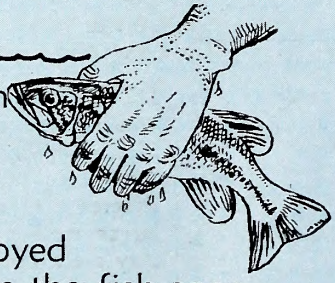
FISH SCALES

HEAD OF FISH

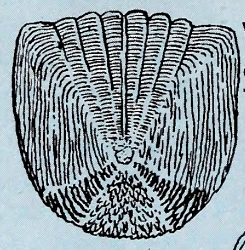


The outer-most layer of the fish's body covering is a mucus secretion. The skin is next, then the scale which is dead material like our fingernails..



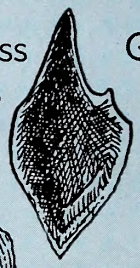
Return small fish to the water with wet hands. The scales are tough, but destroyed mucus may leave the fish open to infection.

TYPES OF FRESHWATER FISH SCALES



White Bass
Sunfishes
Walleye
Perch

CTENOID



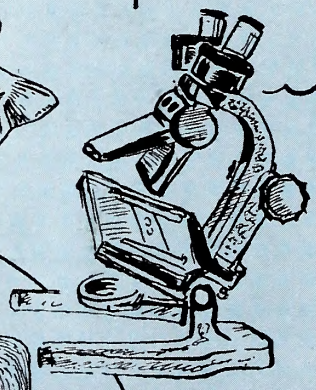
Gar

GANOID

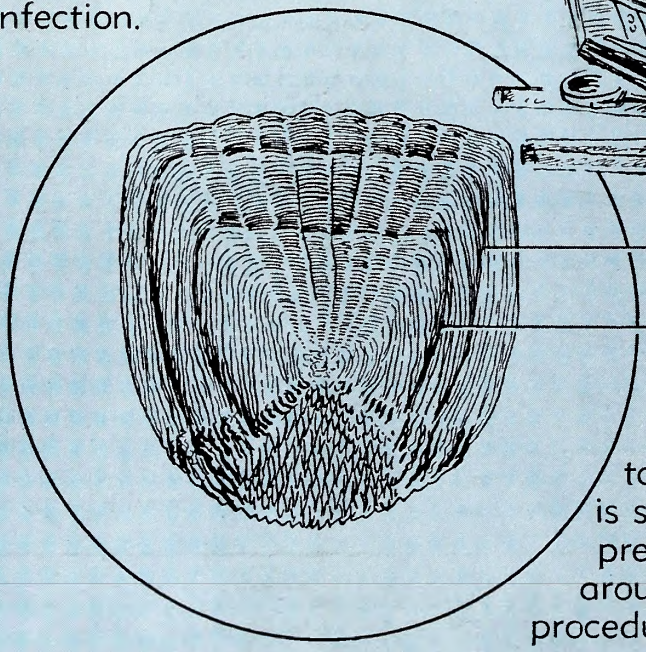
Carp
Suckers

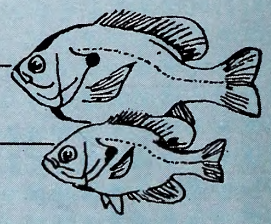
CYCLOID

D. RAVER



A fish begins life scaleless but develops its full number of scales within a few weeks. Scales grow as the fish grows. Each year a "year mark" or annulus forms. Microscopic examination reveals the age.





Fish growth rates are important to the fishery manager: if growth is slow there may be too many fish present and not enough food to go around. Pond and lake management procedures are based on such findings.

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Wildlife

FEBRUARY-1960

TEN CENTS

in north carolina

EXCITING MOMENT

A ring-necked pheasant bursts from cover for an exciting moment at River Bend Ranch, one of the dozen commercial shooting preserves in North Carolina. When the statewide quail season closes on February 15, there is no need to put away the old scattergun. Commercial shooting preserves offer top sport on pheasants, quail, and other species 'til March 31.

Photo by Jack Dermid

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

The blue-winged teal, as painted for our February cover by artist Wallace Hughes, is usually the first arrival in the autumn and the last to leave in spring—but spends the coldest part of the winter further south. Most often seen during peak migration, the blue-wing is a coveted bird in the duck hunter's bag when he does appear during the waterfowl season. Look at the brilliant white crescent on his cheek—this appears on the male during spring but not in fall.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Cottontail Management

By Grady L. Barnes
District Biologist, District 5
Photos by Jack Dermid

Given half a chance through simple management, the prolific cottontail will provide abundant sport for hunter and hound.

THIS fall when the scatterguns and rifles were dug out of the closets and removed from the racks in anticipation of the hunting season, more people pursued the cottontail than any other game animal in America. The interest in this furry game animal has mushroomed until now the beagle hound is the most popular dog in the United States, which speaks well of his quarry, the cottontail. The sport of cottontail hunting, which once belonged to the farm lad and the "one-gallus" hunter, now consumes about 30 percent of all the shotgun shells used in hunting; and the beagle field trial is in itself becoming a major sportsmen's activity.

With all this excitement over the cottontail the question of how to have more has been raised by many people. Biologically speaking the cottontail is well equipped to take the major share of hunting. His biotic potential is amazing. Mating, which takes place four or five times each year, when combined with the relatively short gestation period of 30 days, contributes to a high reproductive rate. If none were destroyed, it would be possible for one pair to multiply into 25 during one year. Considering this biological phenomena and that an average farm probably has one or two pairs on it, you may ask why are there no more cottontails on opening day or throughout the season than most hunters find.

The population density of the cottontail rabbit is usually dependent upon the amount and dispersal of two basic essentials, food and cover. The number of these animals found on any one farm is usually in direct proportion to the distribution and abundance of food and cover. Where few cottontails are found, such as on intensively cultivated farm land or large tracts of timber land, one or more of the basic essentials are lacking. On certain less intensively cultivated areas where an abundant growth of shrubs, briar thickets, vines and weeds are found, rabbits are often plentiful.

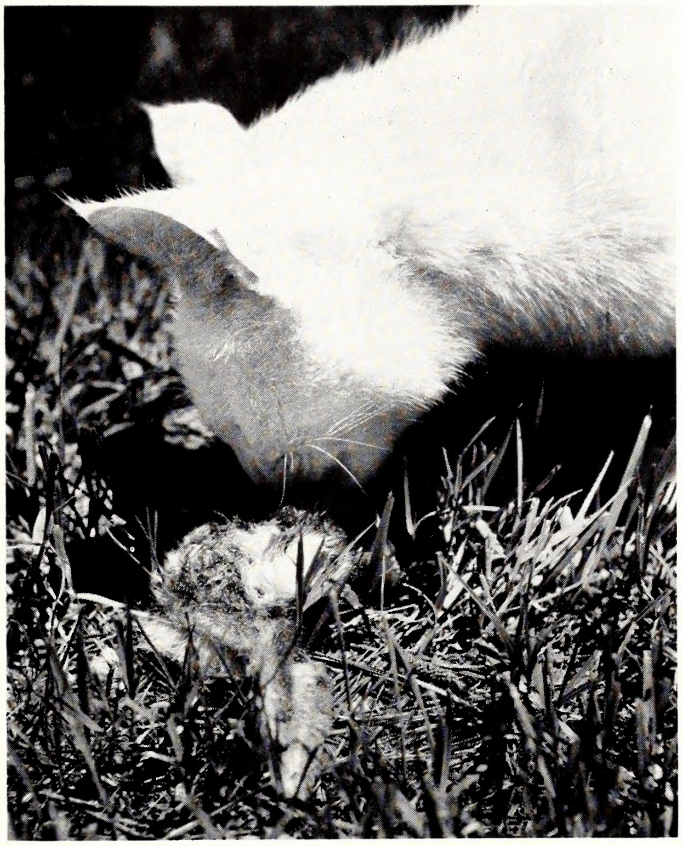
Natural forces are continuously at work reducing the cottontail population until only a few of the original number produced each year are left. These serve as breeders to produce next years crop.

Many different elements are responsible for this reduction, the most important of which are factors relating to man's activities, weather, and predation. The art of producing more cottontails for hunting lies in being able to reduce the force of certain of these factors. This can be done in part by establishing patches of plants which may be used as food and cover.

Br'er Rabbit's Food

Although cottontails will consume almost any herbaceous plant, certain succulent ones are preferred over others. The young new growth of legumes or grasses are most frequently selected when cottontails have a choice. In managing an area it is well to take into consideration feeding habits. Strips of ladino clover and orchard grass, bluegrass, timothy and other adapted clovers may be planted for high quality food production. Strips 12 to 25 feet wide and 300 to 500 feet long are recommended.

Location is of prime importance in selecting an area for a food strip. For maximum utilization and production, food patches should be located close to dense cover. In establishing food plots of grasses and clovers the land should be disked and fertilized in the same manner as for establishing a permanent pasture. After establishment the strips should be fertilized at least once a year. This enables the plants to grow luxuriantly and to produce the high quality food that cottontails prefer.



This baby rabbt did not have a chance. The control of free-hunting cats and dogs during the nesting season is important.

Field border plantings of shrub (left) and sericea lespedeza provide rabbits and quail with abundant food and quality cover.

Mowing is an important tool in maintaining the vegetative growth at the desired level and insures new growth. Grass and clover food strips may be divided and mowed alternately about once every six weeks. This will furnish an area much like the grass lawn-shrubby type found in suburban areas where cottontails are usually abundant.

During adverse weather such as snow, cottontails require high quality foods that are available above the snow level. Annual food patches planted to a mixture of soybeans, cowpeas, milo, millet, and lespedeza not only furnish good summer food but provide this emergency winter food also. Permanent plantings of shrub lespedeza provide a ready supply of tender bark and these plantings are utilized throughout the year.

Escape and Nesting Cover

Escape cover and nesting cover are extremely essential parts of the habitat for cottontails and can be furnished in two ways; first by manipulating the existing growth of shrubs and vines and herbaceous vegetation; and second by planting supplemental patches of plants which will furnish these requirements. The objectives are to provide low ground cover for winter use and to release or encourage new growth.

Over much of the existing range in North Carolina the habitat can be improved by half cutting certain trees and allowing them to fall over. Cutting should not completely sever them at the base, thus they will continue to live and form living cover on the ground. The prevalence of vines and branches can be increased through this method. Also, certain trees can be cut and piled into brush piles to form needed protective cover.

In areas where the habitat does not lend itself to manipulation by cutting or constructing brush piles, various species of plants can be planted to furnish good cover. Sericea lespedeza is easy to establish and once established furnishes excellent cover for rabbits both during the growing season and during winter months. Multiflora rose, a dual purpose plant, will provide a living fence for livestock and protective cover for cottontails. Other plants such as broomsedge and wild plum in fallow fields and odd corners provide good protection from natural enemies.

One of the important points to consider in planting cover for cottontails is to space the plantings so they will not be in one large block. Several small plantings interspersed or adjacent to food plantings will do considerably more good than one large planting. The windrows left after clearing a field with a bulldozer provide ideal homes for cottontails. Such piles should not be burned where there is interest in maintaining high populations.

Farming Practices

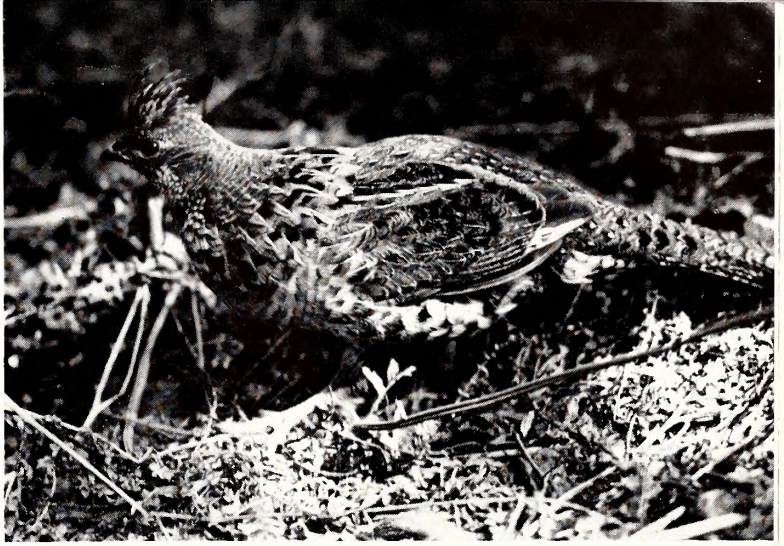
Many of the more important conservation farm practices benefit the cottontail. Practices such as strip cropping, crop rotation, sod waterways, wide-row corn planting, and the establishment of supplemental plantings of shrub and sericea lespedeza, and fescue and ladino clover are the key to having an abundance of cottontails. Contact your local wildlife biologist for assistance in planning for greater cottontail production on your farm.

Farm game management means more rabbits for the hunter. The Commission supplies planting materials free to landowners.

Besides holding livestock and beautifying the farm, a fence of multiflora rose furnishes a safe travel lane for rabbits.

DRUMMER in the Forest

by Ralph A. Bitely
Game Biologist, District 8



Fish and Wildlife Service Photo by C. J. Henry

THUM—thum—thum—thum thummm brrrrr. How many times have you thrilled to this sound of the forest—for it seems to come from the forest itself? If never, then you have missed knowing one of the most fascinating of game birds.

The ruffed grouse, or "pheasant" as it is locally known, is a native of the northern forests and the Appalachian Mountains, which extend through the western portion of our state. The sound described above is not the flight-sound of the grouse, but rather the "drumming" or mating call of the male.

During the spring, the males pick out territories in the forest which furnish food, cover, and a good drumming log or rock. A log is preferred but a large boulder will do if no logs are present. The male selects one end of this log or rock and, slowly at first, begins to beat his wings against the air. As the bird progresses, his wing beats increase in tempo until they are but a blur.

The sound can be likened to a one-cylinder gasoline engine that has just started, begins to run smoothly, and then suddenly stops. In fact, in the regions where oil wells abound, many times engines that drive the oil pumps are mistaken for grouse drumming. This drumming call serves two very good purposes; first it tells all other males that this place is taken and to stay away, and second, it notifies the hens where the males are.

As spring progresses, the drumming intensity increases until there is only a three- or four-minute interval between drummings. Then, as early summer arrives, the drumming males begin to lose steam and slowly the thumpings diminish until only an occasional "drummer" can be heard. For some unexplained reason, however, these occasional outbursts will continue on until winter again claims the helm.

The hens select a nesting site which is usually at the base of a tree or large rock with an open area in front. The rock or tree protects the rear of the nest while the incubating hen keeps a constant surveillance of the open area in front. If the nest should be disturbed during the early days of the incubation period, the hen will more than likely leave and attempt to renest. If, however, 16 or 17 days of the incubation period have gone by, the hen will usually wait until the last second before fleeting, and will then usually return to continue the incubation.

The incubation period lasts from 23 to 24 days, and if successfully completed, a brood of 10 to 12 chicks is hatched. This is a very critical period for the young birds. If an extended period of cold, rainy weather should develop there will be a large mortality of the chicks and consequently a poor hunting season the following fall. The young birds eat many insects and summer fruits, so this type of cover is where they usually spend their summer.

As autumn begins, there may be four or less birds left of the original brood. As the fall progresses and fruits and nuts mature, the birds begin to consume these and can usually be found wherever there is an abundance of wild grapes, white oak acorns, beechnuts, thorn apples, apples, or dogwood berries. This time of year also ushers in the family breakup and establishment of new territories. This season also brings some of the finest sport for the hunter. The days are balmy and clear and the streams are tinkling clear as they tumble down the mountain slopes.

With his trusty setter, the hunter slips through the sun-dappled forest in search of these wily birds. Even should the dog succeed in locating the birds, the best of shots usually bag more oak trees than birds. It has been told by many an old-timer that these wily birds have a sixth sense that tells them to zig and zag through the thickets and to place a large tree between them and the hunter.

For those hunters without a dog, an even more shocking experience awaits them, for these birds have a frightening way of bursting out from under your very feet and flashing out of sight before your wits can be gathered to raise the old blunderbuss.

If you enjoy our mountains and forests, and feel that your ticker needs a little prodding, then give this "drummer in the forest" a try this year.

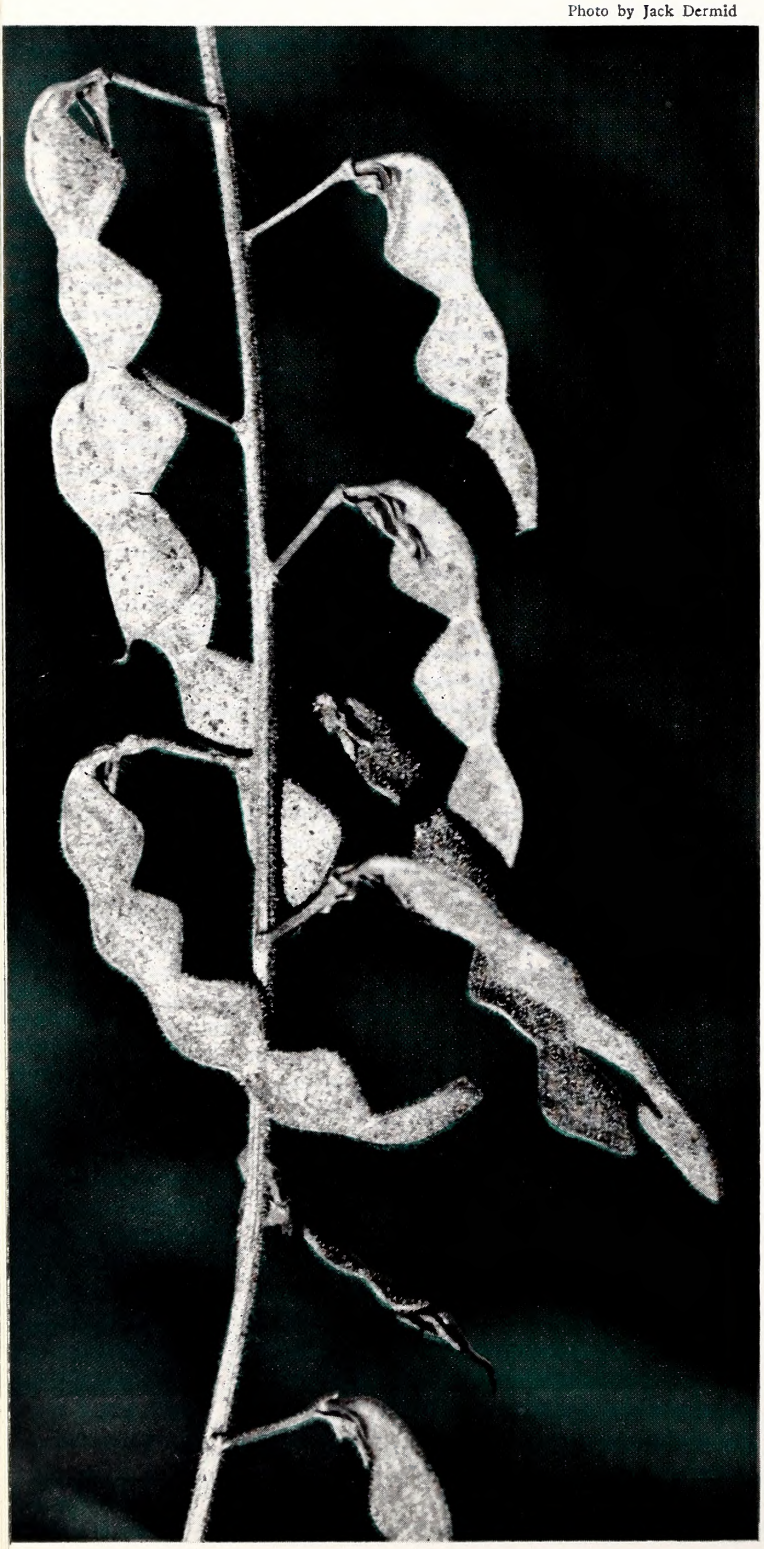
TICKCLOVER

Old Plant With New Role

By Karl E. Graetz

Plant Materials Technician
U. S. Soil Conservation Service, Raleigh

Photo by Jack Dermid



WAY back in prehistoric times a caveman sat by his fire, combing beggarweed seed out of his beard. Little did he realize, as he tugged and cussed, that this pesky little plant would some day find a useful purpose. Yes, the tickclovers or beggarweeds *(Desmodium species)* have been around us, and sticking to us, for a long long time, but only during recent years have we made any serious attempt to "get even" with them by putting them to work for us!

In 1953 the Soil Conservation Service selected a strain of *Desmodium dillenii,* Dillen's tickclover, for observation and testing. Seed were collected and planted in rod rows at the old SCS Nursery in Gretna, Virginia. In 1954 observations were continued at the Wildlife Resources Commission nursery at Chapel Hill, North Carolina, at the State Wildlife Nursery at Garnett, South Carolina, and at the SCS Plant Materials Center located at Americus, Georgia. The superior qualities of the plant were recognized and seed production plantings were established in 1957 at the Chapel Hill nursery and later in South Carolina and Georgia. The first field plantings were established in 1958 and were the first known instances of using this species as a domestic plant. North Carolina Wildlife Commission personnel, with facilities at the Chapel Hill nursery, played a large part in the development of this tickclover. This Wildlife Resources Commission activity of testing new plants is carried on in cooperation with the Plant Material phase of the SCS program.

In general terms, tickclover may be described as a perennial, upright native legume. This strain of tickclover is rather leafy, tall, and matures seed later than other native selections being studied. Average height of the plant is four feet. Leaves are broadly lanceolate in shape and pale green in color. Small lavender blooms appear in early September and seed pods ripen in middle October. The average seed harvest date for the past two years is about the second week in November. It was found that harvesting must wait until the seed are hard and the pods and stems brown and become dry. Branches die to the ground over winter and in the spring new buds and shoots come from the crown. These produce new stems.

An encouraging aspect of this plant is that it probably has a double use. Not only are the seed taken readily by quail, but the plants make good hay if mowed when 16 to 20 inches high. Thus, for example, a farmer could mow part of his field for hay and leave unmowed strips along field borders for quail food. It is even possible to mow the tickclover once in May and still produce an abundant seed crop in the fall.

For forage production, tickclover is adapted to most of the southeast with the possible exception of peninsular Florida. Because of late seed maturity, this strain may not be useful for quail food in the Appalachian Mountains or in other areas which normally expect frost in late September or early October. Earlier seeding species are being studied at the nursery for possible use in the mountains.

The plant requires moderately well to well-drained soils with average fertility. It does not do well on highly eroded or deep sand soils, although it can be grown on such sites with adequate fertilization.

The seeds of native tickclovers have long been recognized as choice quail food. In nature, plants are widely scattered. Except for the annual Florida beggarweed, *Desmodium tortuosum,* they rarely occur in large colonies or complete stands. There has been some doubt as to whether or not one of the native tickclovers could be "tamed" or successfully managed as a cultivated crop. However it has now been demonstrated that such plantings can be easily established and managed to produce food for quail and other wildlife and that large quantities of seed can be produced on limited areas. Thus, two basic requirements for its successful use as a wildlife food plant have been met.

In 1958 successful plantings were established in Johnston, Cleveland, Wake and Orange counties in North Carolina. All were planted in three-foot rows. Hunters found quail in these plantings frequently. The crops of the quail taken were crammed with tickclover seed. Quail began to use these food plantings early in the fall, and use continued through the winter.

Tickclover, shown here in summer, makes good hay if harvested when 16 to 20 inches high. If harvested in May, the plants will still make a seed crop available for wildlife in autumn.

SCS Photo by W. Lee Colburn

Seed yield measurements were taken from the Johnston County planting which is now two years old. The planting is on a Norfolk sandy loam soil. No fertilizer was applied after the first year. The stand of plants was uniform in height to about 40 inches, and they formed a complete canopy. An area measuring 10 by 10 feet was carefully harvested. This sample yielded 1.57 pounds of seed or at the rate of 684 pounds per acre.

Plantings are easily established from seed. The plant withstands weed competition well. Row plantings should be fertilized and cultivated at least once. Broadcast plantings often take an extra year to become productive. Usually they must be clipped high one time to set back tall growing weeds. Ragweed and crabgrass seems to be the most serious competitors.

Plans have been made to establish additional field plantings for the purpose of seed production and it is hoped that quantities of seed will soon be available for field plantings on farms of persons interested in improving conditions for wildlife.

With an average mature height of four feet, the tickclover is an important native legume, enriching the soil and providing food for quail. Seeds were collected here to measure quantity.

Photo by Jack Dermid

Audubon Junior Clubs

School Page by R. L. Burnap
National Audubon Society

For nearly fifty years, the National Audubon Society has sponsored a program to bring nature education to the schoolrooms of the nation. Here is the story.

NATURE as seen through a child's eyes is a world of wonder and fascination . . . a world of fresh and undreamed-of surprises. Through the unclouded lenses of the eyes of children, the most commonplace events of nature are sharply focused on impressionable and receptive minds.

A seed traveling on the wind on a silken parachute . . . a spider web glistening with droplets of dew . . . the chirping chorus of crickets in the autumn dusk. These are wonders of nature that capture a youngster's imagination and spark his curiosity.

Where did the seed come from? How did the spider build its web? How do crickets sing? Finding the answers to questions like these helps a child develop an awareness of the complexity and beauty of his world—helps broaden his understanding of the essential value of all living things and of the landscape upon which both he and they depend for life.

But keen though the questing eyes of children may be, their powers of observation alone cannot provide sound answers to the tantalizing questions about nature that arise in their minds. Answers to these very questions have come to mankind slowly. It has taken literally centuries of painstaking observation by a host of naturalists and careful research by many scientists. Even today, bits of knowledge are steadily being added to gradually clarify some of nature's still existing mysteries.

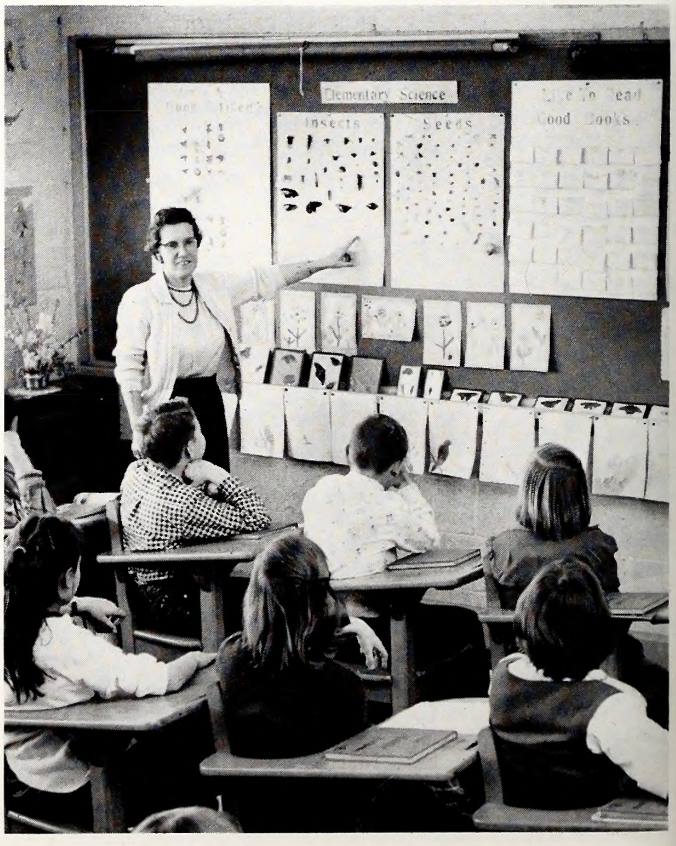
How, then, can the natural curiosity of a child concerning the world about him best be satisfied and nurtured? How can his eager search for answers, his enthusiastic probing of nature's secrets be encouraged?

Some 50 years ago, a pioneer project in nature education was begun, in order to help children learn about the world of nature. The Audubon Junior Club program was started by the National Audubon Society. Its method: to provide parents and teachers with guidance in giving their children first-hand experience in exploring nature. In this way, children could not only be given expert assistance in interpreting what they saw but also they could be shown how to observe more widely and accurately.

It was the conviction of the Audubon Society that if America's precious natural resources were to be conserved and wisely managed, the nation's children would have to develop early in life, an appreciation of their importance. The Society wisely decided that the best starting point was the child's own budding awareness of his surroundings. Each year the Junior Club Program is designed to

One of the greatest contributions a teacher can make is to arouse an interest in nature and conservation in young minds.

Photo by Jack Dermid



instill in children a love and respect for all of nature. The concepts of good conservation can be readily understood at a later date by a child who is concerned about the world of nature, of which he is a part.

To date, the lives of some 11,000,000 children have been enriched through Audubon Junior Clubs. Some of America's top-flight naturalists and conservationists were inspired to their life work by Junior Club activities in their formative years.

How does the Audubon Junior Club program work? To begin with, most of the clubs are formed in school classrooms. Club projects are carefully planned to fit in smootnly with the classroom work of the elementary grades. Teachers are enthusiastic about the added value of the material in elementary science, social studies, creative arts, and even arithmetic. Many clubs have been formed in groups like the Cub Scouts or Brownies. Parents have occasionally organized a club themselves, but more frequently they help organize them within an existing group of children. Ten or more children, plus a leader, are required to form a club. Each child pays a nominal fee of 25¢ which gives him a real sense of belonging to the group and which also helps defray part of the costs of the material.

The leader receives free, a guide that describes a number of basic projects for the club's use, such as making a terrarium or an aquarium. It also contains an invaluable list of reference books and guides on conducting the club program.

The key to the year's activities, however, is found in a set of Project Sheets, sent to the club leader at regular intervals. During the coming year, five Project Sheets will be issued on Trees, Birds, Insects, Flowers and Mammals. These sheets give basic information on each subject and list many fascinating activities for the club to enjoy.

Each child receives a Junior Club Scrapbook, divided into sections, that correspond to the subjects covered by the leader's project sheet. The scrapbooks are profusely illustrated with colored pictures of birds, animals and plants, as well as with line drawings, and each section contains descriptive material and projects. The scrapbook is a sort of framework. Each child fills it with his own highly individualistic pages containing clippings, stories and a record of nature observed through a child's eyes.

NOTE TO TEACHERS: For more information about organizing an Audubon Junior Club in your classroom, write to the National Audubon Society, 1130 Fifth Avenue, New York 28, New York.

Every dip of the net brings up a surprise. Children are eager to learn about the out-of-doors. All they need is guidance.

Dur Morton From National Audubon Society

A spider web glistening with dew captures this youngster's imagination and sparks his curiosity about the world around him.

Hal Harrison From Natural Audubon Society

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

February 15 Marks End of Hunting Season

With the waterfowl, dove and big game seasons closing in January, the only upland game available to hunters were raccoon, opossum, rabbits, quail and wild turkeys. Final date for taking these species is February 15. Foxes may be hunted after that date in counties having local fox laws, and such non-game species as crows and groundhogs may be taken throughout the entire year.

Boat Registration Section Kept Busy

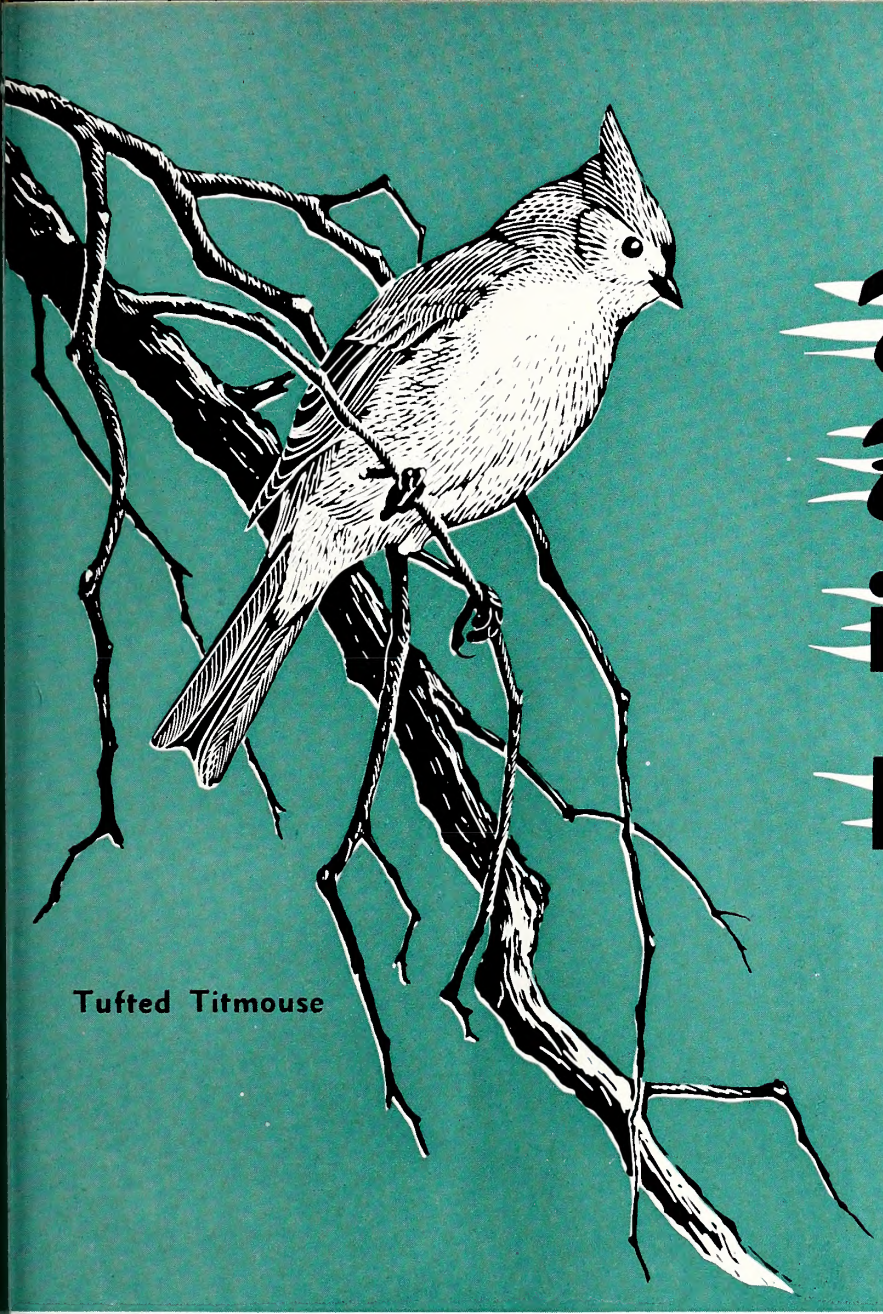
By February 1, the Motorboat Registration Section of the Wildlife Resources Commission had received nearly 11,000 applications for registering boats powered by machinery of more than ten horsepower. This number is more than one-fifth of the total number of boats expected to be licensed. The Commission believes, however, that only time will tell the exact number of boats that will be required to be numbered, and expects that the approach of warm weather will bring in a large number of requests for boat numbers. The Commission advised that boat numbers issued by the U. S. Coast Guard became void as of January 1, 1960.

Mountain Trout Stocking Increased This Year

The Wildlife Resources Commission will stock about 300,000 mountain trout before and during the 1960 season. About one-third of these will go into mountain waters before the season opens, and the remainder as follow-up stocking as the season progresses. The 300,000-fish figure is about the same as last year except that the total weight of the fish will be slightly greater than last year's 55 tons.

In addition there will be an almost equal number of trout produced by the U. S. Fish and Wildlife Service for stocking mountain streams in the area.

The Commission points out that although the 1960 trout stocking is five times that in 1950, fishing pressure has also greatly increased, and trout anglers may not expect any appreciable increase in fish put in the creel except from the effect of federal fish. The stocking of state and federal fish will be done on a cooperative basis.



Tufted Titmouse

Winter Birds in Your Backyard

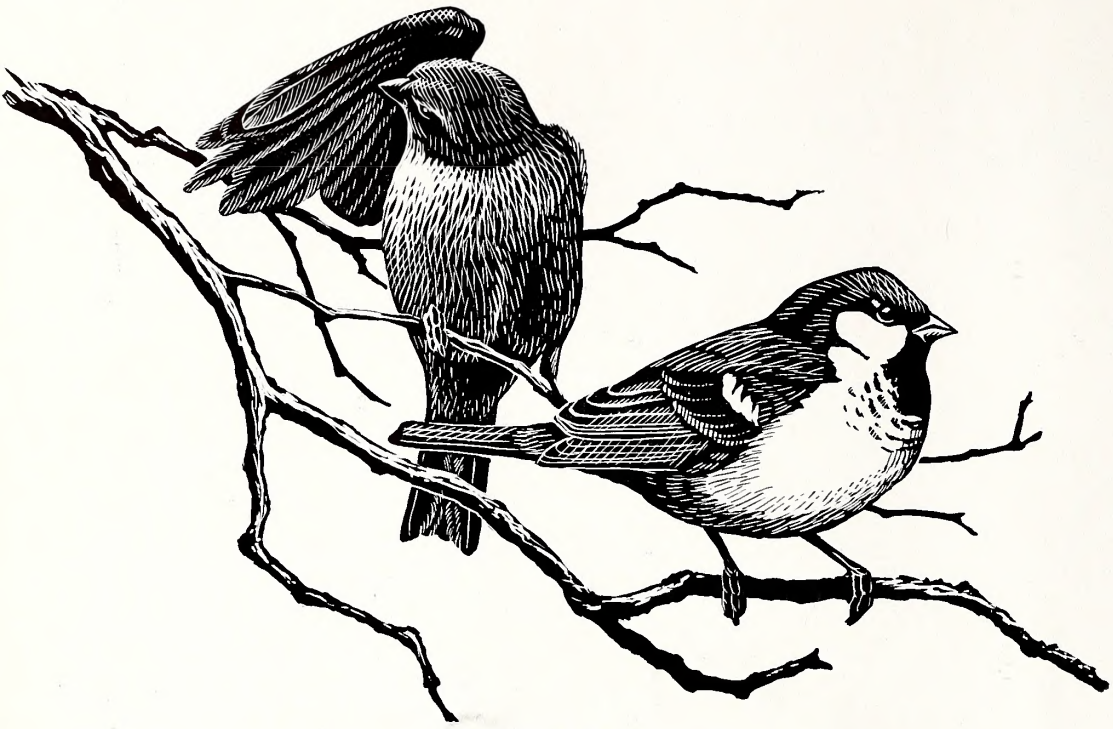
Illustrations by John W. Taylor

BY February most of the seeds of last summer's weeds and grasses have disappeared. Songbirds, like other animals, find later winter the most difficult time of the year. Along with helping these valuable birds to survive the rigors of winter weather, feeding stations give you a chance to watch the world of wildlife in your backyard.

Some of the birds shown on these four pages are not noted for their beautiful songs or plumages—in fact, a few of them are considered as nuisances by many and do not have the protection of law as do other important weed seed and insect-eating birds. Nevertheless, all have their place in the out-of-doors, and each will contribute his share toward your entertainment at a feeder.

All but one of the twelve birds are year-round residents of North Carolina. The white-throated sparrow migrates northward in spring, showing up again when autumn weather forces the little sparrow southward. Another, the Carolina junco, is found in lower mountain valleys in winter and migrates to mountain tops to nest in summer. This unusual vertical migration is not imitated by the slate-colored junco, who goes northward to nest in the summer.

You can assure yourself of a constant stream of guests at a feeding station by offering a variety of tidbits. Some birds, such as the cardinal, prefer sunflower seeds to crack open. Stale bread and dried fruits are good. Many birds like small grains such as wheat, oats, rye, millet and milo. Cracked corn is perhaps the least expensive, but you'll find more birds at your feeder if you offer them the more tempting small grains. Some birds, such as the downy woodpecker, prefer beef suet which you can push firmly into holes bored in a log or post. With a little effort and expense, you can have a host of birds in your backyard.



English Sparrow

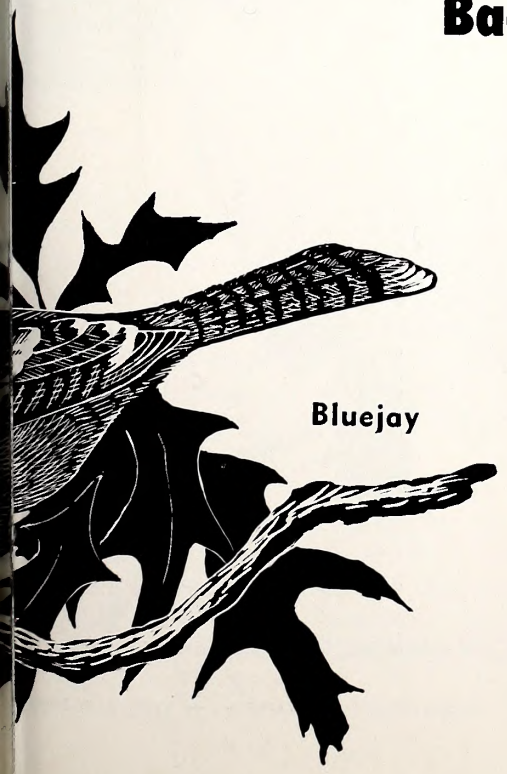
Mockingbird

throated Sparrow

Cardinal

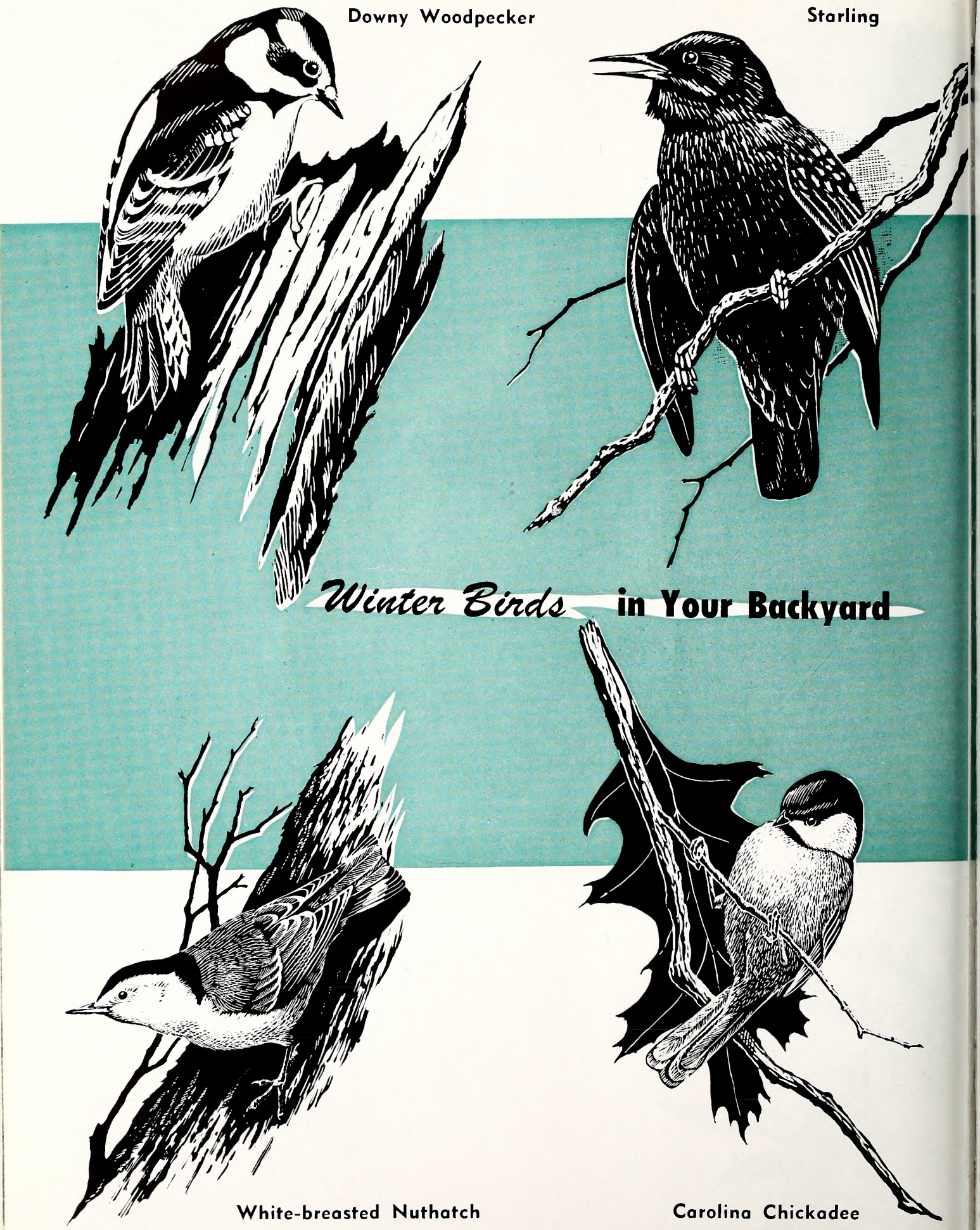
unco

Winter Birds in Your Backyard



Bluejay

Song Sparrow


Downy Woodpecker
Starling
Winter Birds in Your Backyard
White-breasted Nuthatch
Carolina Chickadee

They Call Him REDFIN

by Darrell E. Louder
Fishery Biologist

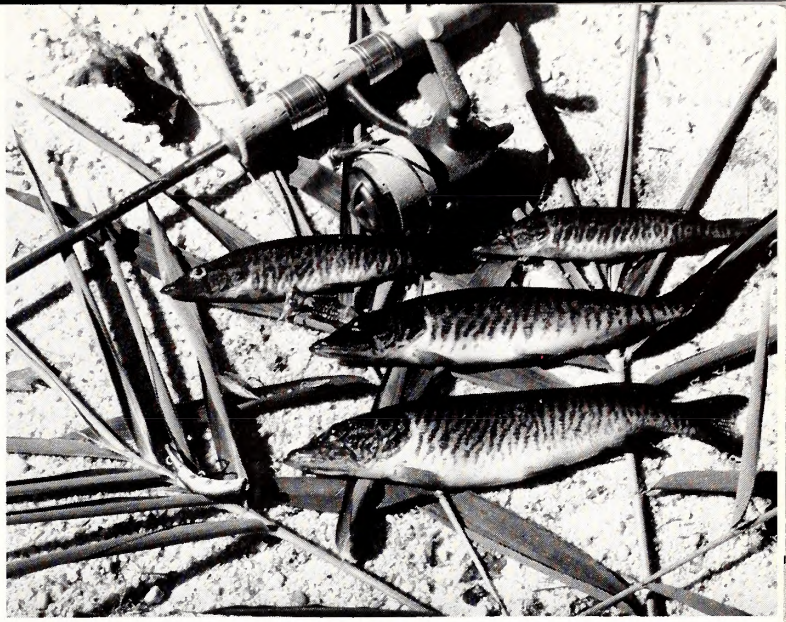


Photo by Duane Raver

These redfins were caught on ultra-light tackle, using light line and a five-foot rod. Notice the banding, which is used to identify the smaller cousin of the native chain pickerel.

DIMINUTIVE cousin of the northern pike, muskellunge and chain pickerel, the redfin pike is one of the most neglected of North Carolina's native game fish. *Esox americanus* is the scientific name, if you're curious, but the few anglers who deal with him call him redfin. Despite his lack of popularity and his small size—maximum about 14½ inches—the redfin deserves a closer look.

Black Bars and Red Fins

The redfin has cheeks and opercles (the boney plates covering the gills) that are fully scaled. The body is crossed by fifteen or more distinct curved black bars. Redfin's snout is somewhat shorter than that of other members of the pike family, and the eye is inclined slightly, so that he appears to be looking backward and downward. The most prominent features, however, are the red fins. During the spawning season in spring the fins reach their peak in brilliance.

The redfin has only 11 or 12 rays in the dorsal and anal fins, while the chain pickerel (jack) has 14 rays in the dorsal and 13 in the anal fin. If you are really serious about your fish identification, count the scales along the lateral line. You'll find about 108 scales on the redfin; the nearest relative, chain pickerel, has about 125 scales. A fifteen-inch redfin is a real whopper; average size is about ten inches.

Black Acid Waters

The redfin is primarily a stream fish, preferring the habitat offered by black acid waters in the swampy lowlands of eastern North Carolina. He also shows up regularly in lakes and ponds throughout the Coastal Plain. This fish prefers water that is clean and free of excessive silt, municipal and industrial pollution. Weed beds seem essential to the redfin, and you'll seldom find him where aquatic vegetation is missing.

From Egg to Adult in Two Years

Very little is known about the life history of the redfin. Spawning extends over quite a period, starting as early as February. Some spawning takes place as late as early summer. The redfin is particular in the selection of a spawning site—usually a cove away from the main current of a stream, where vegetation covers the bottom. Unlike the bass and bluegill which build nests and carefully watch over their young, the redfin lays its eggs in strings over any available vegetation and goes merrily on its way.

During the actual spawning, one or more males accompany the female, with the eggs and milt cast at intervals along a winding path. The sticky strands of eggs adhere to the submerged plants; those eggs which do not find anything to cling to settle to the bottom and die.

The young unattended redfin compete with other fishes for food, prefering midge flies, may flies, and other small aquatic insects. As the young fish grow older their diet changes to the fry of other fish, and later fingerlings of various species. The young redfin reach a maximum length of three to four inches during their first year, and some reach spawning size in two years.

Frantic Scrappiness

The redfin is important primarily as a predator; by feeding on small fish of other species he helps curb excess populations that would result in too many small and stunted fish.

Cane pole fishermen in southeastern North Carolina frequently go after the redfin in the more remote back waters. Sport fishermen with artificials may be missing some fun by passing up this little pike. What he lacks in size, he makes up in frantic scrappiness.

The redfin shows off best on an ultra-light spinning outfit, using 2-pound-test line and a five-foot rod. Tiny spinners, inch-long spoons, or miniature plugs will bring slamming strikes. Cast around vegetation, an old log or other hiding place and reel steadily at a fairly rapid rate. The strike may change your mind about the redfin's sporting qualities. There are, of course, other productive angling methods. so select the one that suits you best.

THE SKIPPER

VERY soon now your motorboat will be sporting a new number on its bow. You will have taken the first step toward complying with North Carolina's Boating Safety Act of 1959. Unfortunately your job doesn't end here any more than highway safety ends with bolting on your automobile's license plate. With your certificate of number you will receive two pamphlets designed to help you understand your responsibilities under the new law. "The North Carolina Motorboat Owners Guide" doesn't tell you how to start a balky outboard, but it does boil down the law's requirements for ready reference. The second document, entitled "Pleasure Craft", digests the Coast Guard's requirements under the Federal Boating Act of 1958. Read and study these; they're your keys to safer boating.

Equipping your boat properly may seem like one first-class headache. But how far would you drive the family flivver at night without lights? You *might* walk away from an automobile wreck, but try this with your boat a half-mile from shore. In buying required safety equipment for your boat the best guide will be the Coast Guard approval stamped or otherwise affixed to each item. Let's take a look at life-saving devices, for example.

Coast Guard approved equipment is contained in Coast Guard Booklet CG-190, "Equipment Lists," which is published approximately once each year. This publication may be obtained upon application to any Coast Guard District office or any Officer in Charge, Marine Inspection. The latest such list of kapok life preservers for example, contains 20 different manufacturers and some 44 models. Another 50 or so models of cork, balsa wood and fibrous glass are listed—all life vest or jacket (child's) types. Look for the Coast Guard approval number, and you're buying right. Now, other models very well may be entirely satisfactory but simply have not received Coast Guard approval—perhaps because they've never been submitted for testing. These won't do, and will not be considered as meeting minimum standards, nor will they be counted toward the minimum number of life saving devices.

Photo by Jack Dermid

You may be surprised to know that "Navy-type" and even Navy-used life jackets are not Coast Guard approved—even though there are thousands of them on U. S. ships all over the world. Why? Well, these jackets have a collar on them that is not reversible and actually can be put on "wrong side out", causing them to cramp the wearer and almost hold his face under water. In emergencies, trouble could result. Don't let the stamp or sales slogan "Navy Approved" mislead you.

Any buoyant devices depending on pneumatic chambers filled with air, carbon dioxide etc., aren't approved because of the puncture possibility. There was one type that depended on wood dowels in loop holes that was turned down because when the wet dowels dried, they had a tendency to fall out.

And so it goes. Many buoyant cushions are approved but actually not heartily recommended because constant use as seat cushions compresses them and decrease their effectiveness. Actually, there is simply no substitute for a life vest—when it's worn.

QUESTION BOX

Question: In my county, certain streams have a boat speed limit; will the wildlife protectors enforce this law?

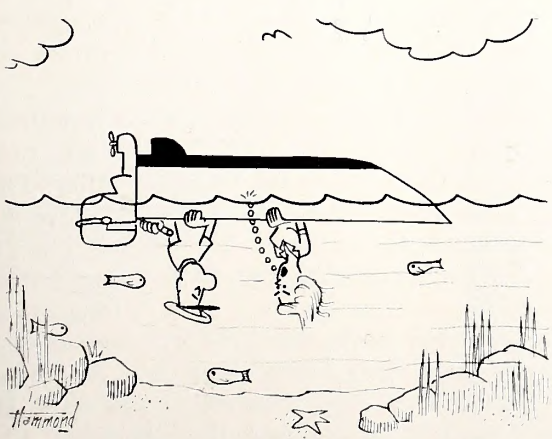
Answer: Although the Wildlife Resources Commission is empowered to make local regulations designed to promote safety, no such local restrictions have been passed as yet. There are county laws passed by the General Assembly which prescribe certain restrictions but these are not regulations of the Wildlife Commission. In most cases, enforcement is the responsibility of the county sheriff.

Question: I am a serviceman stationed in North Carolina and plan to use my 25 horsepower, 15-foot outboard in the public waters of this state this year. I am a resident of Texas. Do I have to register my boat in North Carolina?

Answer: Although North Carolina will be the place of "principle use" for more than the reciprocal limit of 90 days, in this case the Soldiers' and Sailors' Relief Act of the United States apparently prevails and you will not be required to register your boat in North Carolina. However, you must register it in Texas and obtain a Texas number for the boat, since it would be unlawful to operate an unnumbered motorboat in North Carolina waters.

Question: Since I use only a 5½-horsepower motor on my 12-foot boat are there any of the Boating Law's requirements that affect me?

Answer: Most of the emphasis of the Boating Safety Act requirements has been placed on "Motorboats"—those vessels powered by machinery of more than 10 horsepower; however many of the Act's sections apply to you and your boat, particularly as they refer to safe operation. For example boats manually propelled or propelled by motors of 10 horsepower or less must carry a flashlight or lantern "ready at hand" while operating between the hours of sunset and sunrise. Review the Act carefully and note the sections which refer to "vessels" which mean every description of watercraft used as a means of transportation.



"Don't you think that last turn was a little sharp?"

Photo by Jim Lee

Boat Lights Tell a Story

The lights on your boat actually are for the "other guy". They certainly don't help much in the way of illuminating your path, and they aren't much to read by; but to the boats in your vicinity they tell a story—one they must know.

First of all, the lights make other boats aware of your presence. But they go further and even tell which direction you're headed. Supposing a white light swings slowly to your right and comes almost in line with a combination light—showing red to your right and green to your left. This combination tells you that the boat in question is under power, is less than 26 feet long, lighted under Inland Rules, is making a right turn and is now coming head-on toward you. Three lights show up on the horizon; as you come closer, there's a white light to your right, appearing to shine ahead. Several feet back of this light is a green light of about the same magnitude, and finally further back but slightly higher is a bright white light showing all around. From this you know that this boat is under power, over 26 feet long, lighted under Inland Rules, and is proceeding across your path toward your right. As you cruise through the night, you come up on a white light showing less than half a circle (12 points of the compass) and directly behind this light is a very faint green glow to your right and no red light. The white light grows brighter and swings slightly to your left. This should tell you that you are overtaking a boat under sail, less than 26 feet long, turning toward its starboard.

In each of these hypothetical situations the lights determine the situation, and in turn, your action. Read the lights—they tell a story.

Safe Boating is More Fun

By **Paul Jennewein** Information Officer, Cape Fear Power Squadron

IF you've owned a boat for long, there have been certain high spots which have stood out. You can certainly recall a glorious sunny day when you've watched the wake curl away astern, or waves pounding into froth on the nearby shore. Or the time you may have sat in your boat and watched eddies form in a slowly meandering river, with bird and fish life coloring the scene. Or, you may have even seen an unusual sunset reflected in a restful lake, as loaded with your limit of bass and bream you've cruised back to the home dock.

If you've used your boat long you've realized the times of perfect joy afloat are rare and it doesn't take much to turn a joyous occasion into a tragedy. Of course, you've been inclined to forget the times when misfortune struck. They have usually happened through your own ignorance of boat handling or ineptitude of preparations.

But there is at least one organization that tries to eliminate such events as might reduce the pleasures of boating. Members of the United States Power Squadrons are singularly dedicated to teaching a high standard of skill in the handling of pleasure boats so that accidents won't happen. They believe, as most experienced skippers, that safe boating is more fun. More of the pleasures of boating are to be found when you have confidence in your ability and in the seaworthiness of your craft.

Working on the premise that safety can be taught, the USPS requires each of its member units to offer to the public annually a basic course in boat handling. The course is offered free and without obligation. If you later become a member, you can take more advanced courses emphasizing various specialities.

Popular on coasts for many years, the organization has spread to inland lakes and rivers so that it now has more than 46,000 members in 277 local units. It has paralleled the explosive growth in boating.

Five of these units are in North Carolina. Oldest is the Cape Fear Power Squadron in Wilmington, chartered in 1950. Newest is the New River Power Squadron at Jacksonville, chartered in November. Others have been chartered in Raleigh,

Asheville and Winston-Salem. A new one is now being formed at Havelock.

Realizing their increased responsibilities toward North Carolina boating enthusiasts, two of these organizations, Cape Fear and Winston-Salem Power Squadrons, have scheduled this spring the basic course. "Piloting and Small Boat Handling," its official title, touches the barest essentials in lecture form. But it's by no means a simple course.

Pitched to a post-high school level, it covers most of the regulations of the federal law on equipment, lights and nautical rules of the road, many of which have been adopted as State law in North Carolina's boating act which became effective in January. In addition there are lectures on seamanship (the arts of docking, anchoring and operating a boat), on safety afloat (handling gasoline, signaling in distress, operating in heavy weather), on correcting errors inherent in a compass, on aids to navigation, on charts and piloting, and on manners and customs aboard ships. (North Carolina's boating act sections are to be explained in courses held by Tarheel squadrons.)

All materials except textbooks are provided. The course runs about 11 weeks with a final examination. Members are selected from those passing the examination.

You don't have to be a beginner to find something of value from the course. Even experienced skippers have discovered items of information about which they were unaware. Along the seacoast, persons passing the Power Squadron course have had no trouble in meeting educational requirements for the U. S. Coast Guard commercial small boat handling license.

Instructors of the course have one thing in common: they're unpaid. All volunteers—many of them dedicated men—their compensation is the satisfaction of having done something for their fellow men. The organization recognizes their efforts by awarding them a "merit mark," a small gold stripe which they can attach to their uniforms. Only one is awarded a year.

For this compensation, many have traveled hundreds of miles each week to conduct classes. Many have foregone family and business obligations to teach the course in distant communities.

But students have been equally aware of the opportunity of learning. There was the case of two boating enthusiasts in Troy who flew weekly to Myrtle Beach, S. C., to take part in a course conducted there by the Cape Fear Squadron. Last fall several couples from Fayetteville and Dunn drove weekly to Wilmington—almost 200 miles—to receive instruction.

From these enthusiastic students, new organizations may arise. But that is secondary to the purpose of encouraging the study of navigation.

USPS provides for its members four advanced courses on seamanship, piloting, dead reckoning and celestial navigation. Each lead to a higher grade. Insignia of such grades may be worn on a member's uniform and also displayed on the bows of his boat. Although women cannot become members of USPS, they may take the advanced courses. And some units have provisions for allowing youths, 16 or over, to take the courses.

There are also elective courses for members: weather, engine maintenance and sail. Still in a discussion stage but expected this year are the electives of electronics and first aid. It's a comprehensive educational program.

Classroom instruction is part of the Power Squadrons' annual program. Each squadron is required to offer a free course annually without obligation to the general public. Successful graduates are eligible for membership, and can then take advanced class work in various specialties. The basic course includes legal aspects, lights, and rules of the road. Also included are lectures on seamanship and navigation, and safety. Classes are open to men and women.

The non-profit educational organization has no military ties. It does, however, have its own distinctive flag, or ensign, which may be flown in place of the yacht ensign. And for those who can afford them, there are uniforms. On the USPS national board there are representatives of the government and maritime services who serve in an advisory capacity. And its members are pledged to cooperate with federal, state and local agencies, charged with enforcement of laws and regulations relating to navigation.

Since all work and no play would make any organization dull, various social activities and cruises supplement the educational program.

Graduation ceremonies are turned into festive occasions. Annual meetings are usually causes for banquets. And there are other sorts of get-togethers during summers when classes are over. On cruises or "rendezvous," boat handling abilities are put to use and newest acquisitions are displayed. Usually, there are a number of family picnics via water to favorite islands or scenic sites.

Cape Fear Squadron conducted a series of weekend deep sea fishing cruises in which members remained in contact by radio, converging on the spot which appeared to yield the best fishing. To encourage river cruising, it holds almost every year a season-opener in March to an island in the Cape Fear River. The stag shad fry, open to all boating enthusiasts, has attracted as many as 350 persons and 150 boats.

Winston-Salem Squadron has similar activities planned to take advantage of recreational facilities at High Rock Lake. New River Squadron is planning social activities and cruises around the huge Marine Base in Onslow County. Other inland squadrons at Raleigh and Asheville will try to keep a healthy balance between fellowship and education.

Although play is the main course of events in the summer, there are a few educational activities arranged as a service to communities. Cape Fear Squadron, for instance, has held annually a one-night session prior to the beach season. In two hours, essentials of regulations and equipment required aboard boats are discussed. Other squadrons plan similar safety sessions in observance of National Safe Boating Week, to be held early in July this year.

Most of the educational departments in squadrons are geared to opening their programs in the fall. But you may still be able to enter the spring piloting classes.

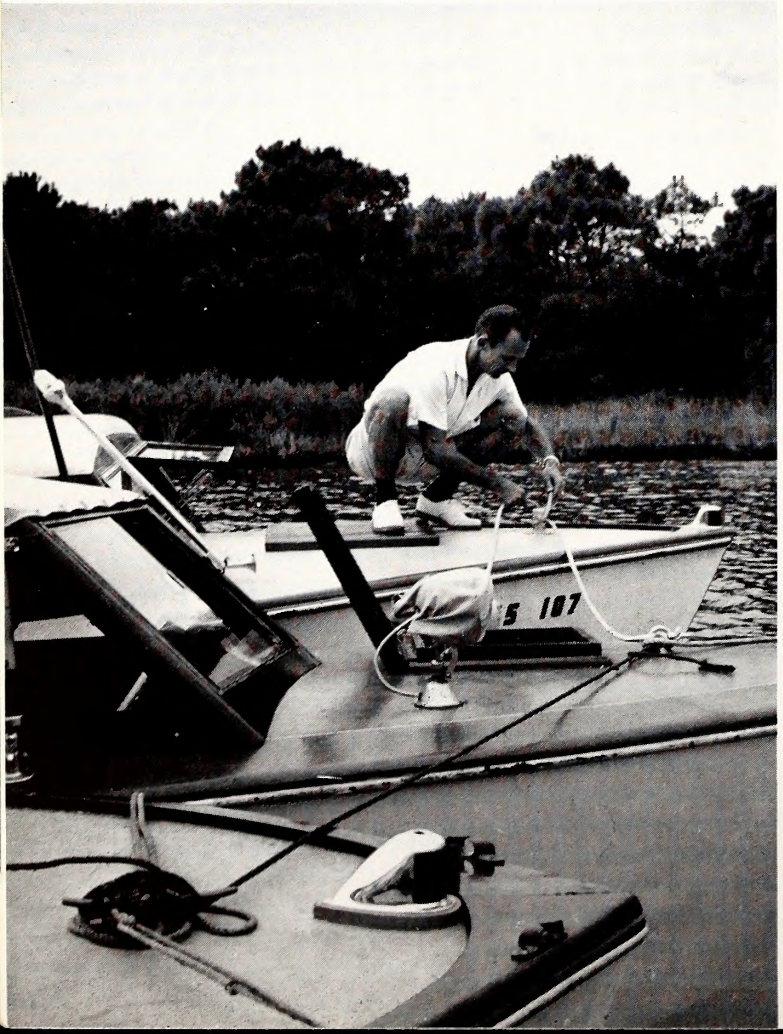
Winston-Salem Squadron's course started Jan. 14. Contact Commander James M. Thomas, P. O. Box 2442, or Rt. 9, Box 55, Winston-Salem. Cape Fear Squadron's class started about the same time. Contact Cdr. Robert D. Dixon, 2521 Van Buren St., Wilmington.

Other Tarheel squadrons will probably open their fall classes early in September or may have special classes earlier. For information on these courses contact the following:

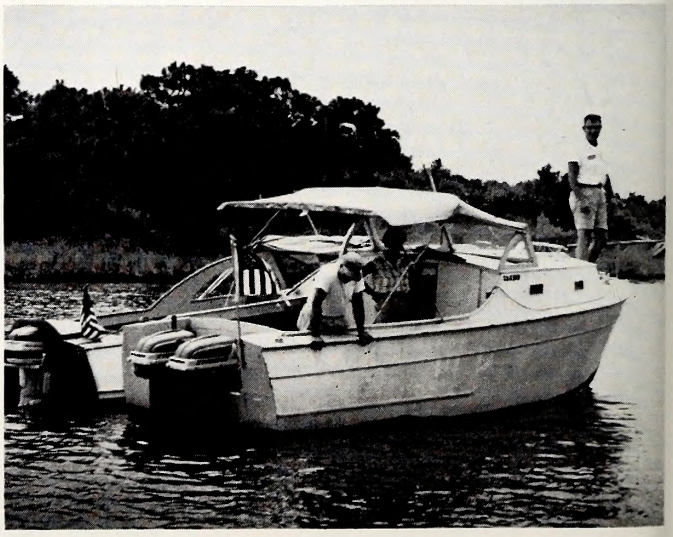
Cdr. Sherburn M. Stanley, Medical-Dental Building, Asheville; Cdr. Milton S. Adler, 624 Court St., Jacksonville, and Cdr. William D. Evans, Jr., 718 Lake Boone Trail, Raleigh.

Part of the program of local groups is such activities as annual cruises. Here a member of the Cape Fear Squadron ties his boat to others during a recent weekend river cruise.

Photos by Paul Jennewein



Although owners of larger boats are welcome, you don't have to have an expensive cabin cruiser to be an active member of this organization, which welcomes all boating enthusiasts.



1960 Fishing Rules Mean Less Restriction

Fishing may not be any better in 1960, but it should be slightly easier—the new fishing regulations published by the Wildlife Commission contain several changes that mean less restrictions for the Tarheel angler.

Previously there has been a 15-inch minimum size limit on the walleye, an introduced fish that has become important in several reservoirs. This minimum size has been abolished, and you can keep any size up to a maximum of eight fish.

In the past there has been a creel limit of 15 for white bass. This limit has been removed, so you can keep all you want. This is another introduced species; it has been a spectacular success in Lake Tillery and Catawba Lake.

The striped bass, or rockfish, has always been important in Albemarle Sound and the Roanoke River. While the minimum size remains at 12 inches, the creel limit for sport fishermen has been raised from 15 to 25 fish.

One minor restriction has been removed on pan fish this year. In the past there was a minimum size limit on Lake Waccamaw for white perch, warmouth, bluegill and the pumpkinseed. This limit has been removed, and you can keep 'em if they're big enough to bite.

You'll no longer have to quit fishing on Currituck Sound when the sun goes down. A local regulation, which forbade fishing between sunset and sunrise on Currituck Sound only, has been removed.

One of only two changes in the regulations resulting in further restrictions involves seining for bait fish. Previously the regulations prohibited the use of any species of bass, trout, or walleye. The rule has been extended to include the young of any species of game fish.

The period for taking non-game fish with gill nets has been extended in Districts 1, 2, and 4—coastal counties where a considerable number of rough fish are caught each year. Previously this was allowed from January 1 to March 15; now it's legal from December 1 to March 31. In other Wildlife Commission districts the use of gill nets is possible with a special fishing license issued by the local wildlife protector.

Another area has been set aside for women and children under the age of twelve. Along with Neals Creek in the Mount Mitchell Wildlife Management Area, women and children have exclusive privileges on the right prong, west fork of the Pigeon River within the Sherwood Wildlife Management Area in Haywood County. Commission officials point out that although this is a new restriction, all fishing in wildlife management areas is by permit only and that several thousand miles of trout streams still remain open to men.

And the children of servicemen stationed in North Carolina received special attention in the new regulations. Servicemen and their wives, when assigned to military facilities within North Carolina, have been authorized for several years to purchase state resident fishing licenses regardless of how long they have been in North Carolina. With the new regulation, their children under 21 years of age may also qualify as residents in order to buy the less expensive license.

PROTECTOR OF THE MONTH

Freelen L. Fraley

Freelen L. Fraley of Washington, North Carolina, Wildlife Protector of Beaufort County, was born in Richfield, North Carolina on February 16, 1921. The son of Mr. and Mrs. F. R. Fraley of High Point, North Carolina, he attended High Point High School and Jones Business College.

Mr. Fraley served seven years with the Armed Forces, three years of this with the 126th Military Police Company overseas. He was employed by the Wildlife Resources Commission in July, 1951, and has attended four wildlife training schools, conducted by the Institute of Government in Chapel Hill.

Mr. Fraley is married to the former Yvonne Cardoze of the Netherland West Indies, and they have three sons. He is a Quaker, and a member of Masonic Lodge 138 in Burgaw.

ENFORCEMENT RECORD FOR NOVEMBER

Persons checked	30,811
Total prosecutions	898
Total convictions	876
Total cases not guilty	13
Total cases nol prossed	8
Total cases dismissed	1
Total fines collected	$8,344.05
Total costs collected	$5,934.50

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW!

QUESTION: Must a person carry some means of identification while fishing?

ANSWER: The fishing regulations make it unlawful to fish without having on one's person a means of identification. This applies to all fishermen, regardless of whether or not they are required to have a fishing license.

DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

There's not much doing outdoors in February. Most of the hunting is over except for foxes and varmints such as crows. On the second day Ol' Br'er Groundhog traditionally sticks his head out of his den. Whether or not he sees his shadow, it will still be about six weeks before the fish start biting. It's a good time to go over your fishing tackle, though, and start thumbing through tackle catalogues (if you are a *real* fisherman you've been doing that all winter).

Down Nags Head way is the annual Valentine's Day fox hunt, where hundreds of people and more hundreds of hounds take to the dunes and live oak swamps in pursuit of Br'er Fox. Headquarters for the hunt are at the Carolinian Hotel, and you can get details regarding the program from that source.

Crow hunting is good sport any time of the year, but especially good in February. The birds are starting to get excited over the nesting season. Here is a letter on the subject:

DEAR SIRS: I would appreciate any information you can supply me concerning the location of a game calling apparatus. This was formerly used for goose calling, but has been outlawed. The outfit consists of a record device and an amplifier run by battery. I need it for crow calling and hunting.

Any information concerning this would be appreciated. PAT BRADY, REIDSVILLE.

We are passing Mr. Brady's letter along in hope that someone can tell him where to get the gadget. His street address is 1404 Penrose Drive, Reidsville.

Plea for Pollution Control

Congress is now in session, and we have pointed out in these pages that a great deal of legislation pertaining to conservation is coming up for consideration. Dr. Ira N. Gabrielson, president of the Wildlife Management Institute and chairman of the Citizens Committee on Natural Resources, has written this urgent open letter:

TO ALL CONSERVATIONISTS: Public unfamiliarity with congressional procedure can defeat the efforts of conservationists and public health and sanitary experts to greatly strengthen the Federal Water Pollution Control Act during the 86th Congress.

Dead game fish: the result of pollution.

Regardless of what you may have heard, H. R. 3610—which would increase Federal grants for urgently needed state-approved municipal sewage treatment plants—IS NOT DEAD.

This bill and all other pending legislation carry over to the 2nd Session. Congress is merely in recess between the 1st and 2nd Sessions, and bills do not die until the close of the 2nd Session of each Congress.

H. R. 3610 passed both the House and Senate during the 1st Session of this 86th Congress. It should receive final consideration early in 1960. The proposal was not sent to the President this year because the House and Senate conference committee did not have an opportunity to iron out the differences in the measure before adjournment.

Whether the President accepts H. R. 3610 depends on how vigorously the public demands that he approve it. The White House has been following the lead of the National Association of Manufacturers and the Chamber of Commerce of the U. S. and is cool toward any realistic program for ridding the nation's streams and lakes of domestic, municipal and industrial filth.

The battle can be won. Now is the time for you and your friends to insist that the Federal Government assume its fair share in the national program to cleanse America's waters.

Telephone, telegraph or write the White House. Express your approval of H. R. 3610, and ask that it be approved when it reaches the President's desk early next year. Write your Representatives and Senators. You also can help by writing to the key Members of Congress whose names appear on the back of this letter. They probably will be members of the House-Senate Conference Committee. Ask them to clear H. R. 3610 and send it to The White House promptly in 1960. IRA N. GABRIELSON, CHAIRMAN, WASHINGTON, D. C.

Representatives	
John A. Blatnik	(D—Minn.)
George H. Fallon	(D—Md.)
Clifford Davis	(D—Tenn.)
Robert E. Jones	(D—Ala.)
Frank E. Smith	(D—Miss.)
James C. Auchincloss	(R—N.J.)
Gordon H. Sherer	(R—Ohio)
William C. Cramer	(R—Fla.)
Senators	
Dennis Chavez	(D—N.Mex.)
Robert S. Kerr	(D—Okla.)
Pat McNamara	(D—Mich.)
Thos. E. Martin	(R—S.D.)
John Sherman Cooper	(R—Kent.)

Address: U. S. Congress, Washington 25, D. C.

Gift Subscription

DEAR SIRS: I am enclosing a check for Wildlife Magazine to be sent to my niece, Martha Conway, who is Secretary of the State of Virginia. Martha loves boating, fishing, etc. I am sure that she will enjoy Wildlife Magazine. She was born in Ral-

eigh in 1917, and loves North Carolina.

The picture on your December cover is beautiful, let's give it a name, "Christmas Night." I do a little amateur painting and I'm planning to copy it.

My husband takes Wildlife and we think it is a wonderful magazine. MRS. E. S. BARBOUR, HUBERT, N. C.

On the subject of subscriptions to *Wildlife,* the girls in our circulation department have been processing the biggest batch of subscriptions we have ever received. We hope that everyone will be on the list with this issue, and our thanks go to those who have waited patiently for their first copy to arrive.

By the way, the Man in the White House is on the *Wildlife* mailing list. Troxler's Heating and Air Conditioning, China Grove, bought a one-year subscription for President Eisenhower.

"However, when it comes to real hunting, he's a bit squeamish."

Wildlife Calendar

Announcements of coming events are welcomed from wildlife clubs, field trial associations, and other organizations sponsoring hunting, fishing and boating activities of regional and state-wide interest. Club secretaries should mail complete information at least six weeks in advance of publication date to "Wildlife Calendar" Editor, Wildlife in North Carolina, Box 2919, Raleigh.

Feb. Canada geese and other waterfowl remain through month at Gaddy's Pond, near Ansonville; Pea Island National Wildlife Refuge on the Outer Banks; Lake Mattamuskeet.

Feb. 3-6 Valentine Season Fox Hunt at Nags Head, 13th annual. Contact Carolinian Hotel, Nags Head.

Feb. 15 Season closes on raccoon and opossum (with earlier exceptions), on rabbits (statewide), quail (statewide), wild turkey (no open season in some counties), ruffed grouse (later exception in some counties) and non-native pheasants.

Feb. 18-20 N. C. Gun Dog Classics, bird dog field trial, N. C. Field Trial Association, Hoffman.

Feb. 27 Bird Dog Field Trials, Tryon, Tryon Riding and Hunt Club.

Quail Foods

DEAR SIRS: I have killed several quail lately that I couldn't identify the kind of seeds, berries, etc., that they had eaten. I have tried several sources for information as to their identity and have failed. One of the sources was your magazine, and I have every issue back to September 1951. I failed to find much information and few pictures in color of the different wild and domestic foods for the bobwhite quail. I would appreciate it very much if you would refer me to a source whereby I can obtain a color picture of wild game food, especially quail. EARL B. JOHNSON, BURLINGTON.

We regret very much that we do not have any color illustrations of quail foods. You might get some help from Dr. Fred S. Barkalow, Zoology Department, North Carolina State College. Also the Seed Laboratory at the State Department of Agriculture, Raleigh, might be able to analyze the quail foods for you.

Hunter Cleans Buzzard

California hunters sometimes have unusual tastes. Warden Tom C. Harrison, according to information provided the National Wildlife Federation, recently cited a Covina truck driver for having in his possession a protected bird—the turkey buzzard. What puzzled Harrison most, however, was not that the man had killed the bird—he had picked and cleaned it preparatory to eating it! Some years ago, a California hunter was apprehended with a dead mule in his truck. He thought it was a moose even though the animal wore shoes!

Attention All Guides!

The Wildlife Resources Commission and the State Travel Bureau get frequent requests from within and without North Carolina for the names and addresses of guides—both for fishing and hunting. We believe that a comprehensive listing of guides and their services would be mutually helpful to all concerned. If you offer guide service, please send us the following information. It will be free advertising for you, and will help us in our job of giving out information to the public we serve.

Name; address; type of guide service (type of fishing or hunting); facilities available (lodging, meals, dogs, equipment etc.); and location of area where your services are available.

North Carolina is one of the top vacation states. The average tourist can find his way around with a highway map. But hunters and fishermen need more specific information. You help us—and we will help you.

Wildlife protectors face an important new job in 1960—the enforcement of the Boating Safety Act which became effective on January 1. Protection Division men are well prepared for their added responsibilities. During December, training classes were conducted under the direction of the Institute of Government where both Federal and State boating acts were explained. Other topics included licensing requirements and procedures, enforcement procedures, and approved safety equipment. Instructors were Dexter Watts (shown) and Neal Forney, Institute of Government; Joseph Whitman, Coast Guard Auxiliary training officer; and Don Curtis, assistant chief, Wildlife Protection Division. Boatowners should be ready, too!

February 2 is Groundhog Day, and then, according to legend, the hibernating groundhog awakens to make a weather prediction. If the sun is shining, the groundhog sees his shadow and returns to bed—for there will be six more weeks of winter weather. If the day is overcast, he continues about his business, assured of an early spring. Will he be correct?

"Birds of North Carolina"

DEAR SIRS: You will recall that in Wildlife, for February, 1958, you cooperated with us by carrying an article on the forthcoming revised edition of "Birds of North Carolina."

It was planned to have the book in April or May, 1958. Then the strike of printers began in November 1957, and continues even now. The work on the book had gone too far to make a change to another printing firm.

Now the printer says he can begin to deliver books to us in January, 1960.

If you will be so helpful we would like for you to carry another article, giving a brief description of the book (from the previous February, 1958, article) and stating that two new birds were added in the interim, and that the books will be available in January, 1960.

Further state that the prepublication price of $4.00 (vs. the regular price of $5.00) will be available to subscribers prior to March 1, 1960.

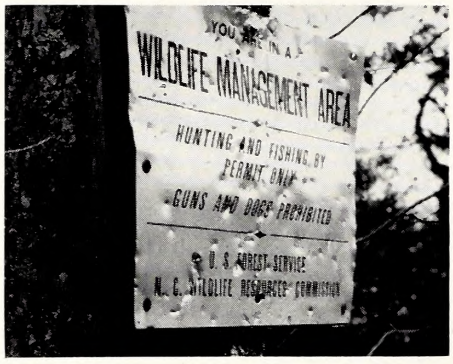
Subscribers may send us an order with or without payment. In the latter case we will notify them when the book can be shipped. Address orders to: MUSEUM EXTENSION FUND, BOX 2281, RALEIGH. Thank you. HARRY T. DAVIS, DIRECTOR, N. C. STATE MUSEUM, RALEIGH.

Chemicals and the Cranberry Crisis

Wildlife conservationists who have been crying in the wilderness against indiscriminate use of pesticide and herbicide chemicals until they are proven to be safe found a powerful weapon in the current "cranberry crisis."

Action by Secretary of Health, Education, and Welfare Arthur S. Flemming to declare cranberry production in some areas contaminated because of the use of a weed-killing chemical known to cause cancer in rats stirred up one of the biggest news stories of the year. The action, taken just prior to the traditional Thanksgiving observance featuring cranberries, hit producers in the pocketbook. Resulting protests, highly publicized by all news media, probably awakened the general public as never before to the dangers of improperly-used chemicals.

Conservationists, realizing dam-



Why would anyone deface a management area sign? They are erected for the sportsman to protect his lands and wildlife. This was photographed at Wayah Bald.

age to wildlife and fish populations and suspecting dangers to humans have been calling for: 1.—additional research into all effects of pesticide and herbicide compounds; 2.—additional investigation to discover selective chemicals which will solve particular problems without danger to valuable resources; 3.—less emphasis on broad spectrum chemicals; and, 4.—additional safeguards against indiscriminate or improper use of dangerous chemicals.

DEAR SIRS: I would like to know if it is possible to obtain a Sharp-shinned hawk (Accipiter striatus) through your state. However, any other kind of hawk would gladly be accepted. If this is not possible, I would appreciate it if you could inform me as to where I might obtain one. Thank you for your kind attention. PETER A. LOWRY, 121 ALLENWOOD ROAD, GREAT NECK, NEW YORK.

Your recent letter to the Department of Conservation and Development has been referred to this office for reply. We regret that we do not have any sharp-shinned hawks available. If we may print your letter in our magazine perhaps some of our readers can supply you or tell you where one might be available.

Case of the Mysterious Holes

DEAR SIRS: For a couple of months something has been digging holes in my yard every night, evidently in search of white grubs or Junebug larvae, with which my lawn is badly infested. Every morning I look for them I can find a dozen or so fresh holes, some very tiny and neat, an inch or so across, some apparently scratched with larger paws, about as large as the palm of a man's hand, and occasionally one where the creature was unsuccessful in making much of a hole, as if it were not very well equipped for digging.

From the differences between the three types of holes I am inclined to believe that more than one animal may be responsible, but in all cases all the digging is done at night; I never see anything about the lawn during the day.

I wish I knew what was doing this. Not that I think I should be able to do anything about it, though my sod has been badly damaged, and the damage continues.

Skunks frequently make neat, cone-shaped holes when digging for grubs or other food.

I'd just like to know what could be feeding on these grubs, and I thought some of your staff might be able to make a good guess. EDGAR ABERNETHY, STANLEY, N. C.

DEAR MR. ABERNETHY: Your letter presents a very interesting problem that people have with lawns in some areas of our state. From the information you have presented, the best I can do is hazard a guess.

The small, neat hole you describe is made where an insect, having developed in the ground during its larva stage, has emerged as an adult. The insect may be a Japanese bettle, or periodic cicada, which has been feeding on the grass roots causing "dead" spots to appear.

As to the mammal which may be digging the holes prior to the emergence of

the insect, this may well be a skunk. The skunk has an appetite for "grub worms," and being nocturnal in habit could have hindered you from seeing it at work.

As cold weather sets in this invasion of your lawn should stop. WILLIAM L. HAMNETT, WILDLIFE EDUCATION REPRESENTATIVE

Fish Stocking

DEAR SIRS: I would like to ask if it would be possible to put rock bass in our mountain lakes, such as Fontana. If not please let me know whether salt water reaches into Kerr Lake or not. I would also appreciate seeing in Wildlife the progress the fish are making that were flown here from another state and were to be put in some of our lakes on trial. Since then I haven't been able to find out anything regarding this experiment. Please give us wildlife club members all clear and available information possible in the Wildlife Magazine each month. P. H. CLAY, ALEXANDER, N. C.

DEAR MR. CLAY: In reply to your recent letter inquiring about the rock bass and their introduction into mountain lakes, we would have the following comments to make: We feel that you are referring to the rockfish or striped bass rather than the rock bass or redeye which is a small sunfish of the fast-flowing streams. We have found that the striped bass has as its number one requirement for spawning, and thus maintenance of its own kind, fairly swift moving waters which will keep the eggs in motion for at least fifty hours or until they hatch. It appears that very few lakes and reservoirs in North Carolina have these tributary streams, thus it is very likely that any stocking of striped bass in such waters would not result in a continuing population. Also we have found that the striped bass requires an extremely abundant food supply in order to grow and establish a good fishable population. There may be some doubt about the adequacy of such food supply in many of the cold moutnain lakes.

Salt water does not reach Kerr Reservoir although the presence of salt water is not a requirement of striped bass since this fish consistently runs upstream in fresh-water rivers to spawn each spring.

In regard to the fish which were flown into North Carolina, you may have reference to different species arriving here some years apart. The first such introductions were of walleye eggs rather than fry and these eggs were subsequently hatched and young walleye stocked with a high degree of success. At the present time, some of the best walleye fishing occurs in Lake James, Hiwassee Reservoir, Nantahala Reservoir, and very soon in Apalachia Reservoir. The second such "air express" introductions arrived in North Carolina in the early spring of 1958; these eggs consisted of northern pike fry from Ohio. Since this was an experiment we were concerned about the success of this cold water fish and have been reluctant to make any announcement concerning their success until they have been given a longer time to establish themselves. To date we have had no official reports of survival from any of the widely scattered northern pike introductions.

If we can be of further help to you, please let us know. DUANE F. RAVER, WILDLIFE EDUCATION REPRESENTATIVE

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Wildlife

MARCH-1960

TEN CENTS

in north carolina

Sunrise on the Water

Photo by Jim Lee

A new day is rising on North Carolina's waters. This month thousands of Tarheels will take to the lakes and streams far safer boating under the new boating safety law. And this year the new Department of Water Resources, charged with looking after water for the best interests of everyone, moves into high gear. **See Page 4.**

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Governor

North Carolina
Wildlife Resources Commission

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Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

We were undecided whether to use Bud Taylor's bluebird painting for March or April—April marks the beginning of the nesting season, when you're apt to see scenes such as this, but March is the month when you should build and erect bluebird houses. We concluded that it would be more appropriate to encourage construction of houses—so here we are with a mid-April picture in the month of March.

The bluebird himself doesn't care—these brightly-plumed birds range the whole state throughout the year. Watercolor painting by John W. Taylor, Jr.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Photos by Jim Lee

Water... Key to Your Survival

By Tom Walker
Department of Water Resources

If all the water that falls on North Carolina during a year were to remain where it fell, you'd have to take a rowboat to work. The nearly five-foot annual rainfall is excellent, yet we have water problems. A look at some of these problems, and the answers that loom in the future, highlights this year's observance of National Wildlife Week, to be held March 20-26.

NORTH Carolina has an abundant supply of water, furnished by rainfall which averages better than four feet a year—enough water to take care of our needs for many years to come, provided we manage it properly and use it wisely. Yet we have been faced with severe droughts, seasonal floods, and pollution so potent that some of our streams will not even support the lowly catfish.

Problems of water quantity and quality have been recognized for a long time in the Tarheel State. And as problems arose, State programs were developed—in more or less unrelated stages over a period of many years—and several agencies had varying degrees of responsibility for these activities.

Concern over the matter of scattered management of our water resources led to the introduction of a bill in the 1959 Legislature to place in a single agency the major responsibility for the State's water resources activities. With the backing of the agencies involved, as well as that of other agencies, semi-public organizations, and individuals, the bill was passed without opposition. On September 1, 1959, the Department of Water Resources came into being.

The department is the State's youngest agency, six months old in March. It is new—and yet not new, since many of the functions assigned to it have

been performed for many years, and most of its personnel were associated previously with State water-resources activities. The department is new in the sense that its organization represents a completely new approach to water administration by the State. As Governor Hodges has put it, the agency gives North Carolina—for the first time in its history—the machinery for a coordinated effort to develop a comprehensive water program.

To the Department of Water Resources are assigned the duties in the area of water resources which were formerly performed by two divisions of the Department of Conservation and Development, the Division of Mineral Resources and the Division

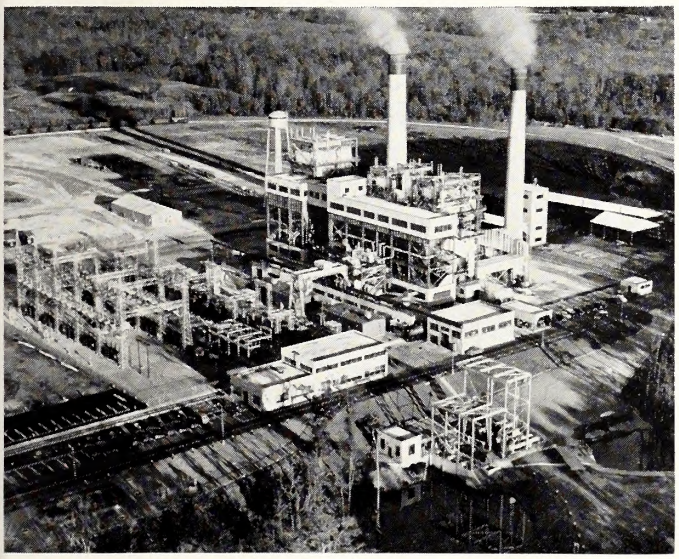


Photo by Cape Fear Studio

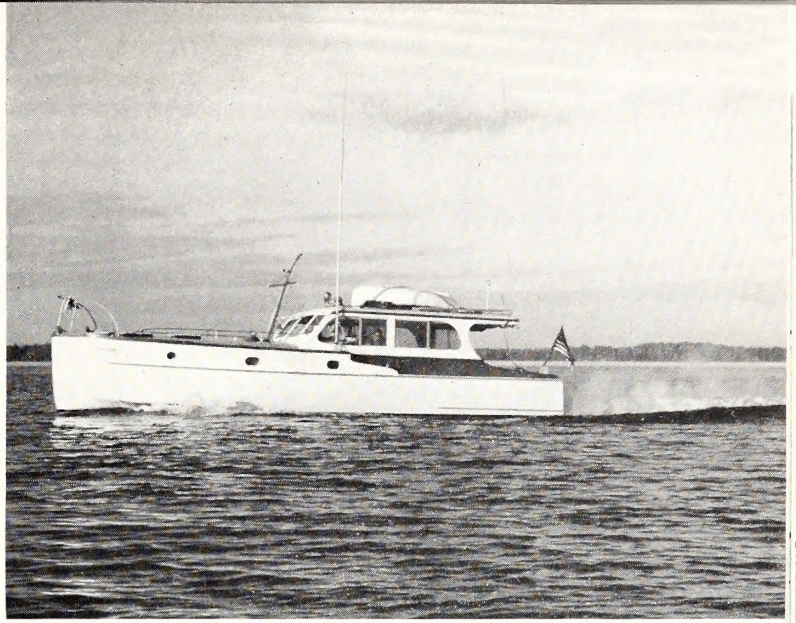
Water for industry is one of North Carolina's greatest assets in the competition for new plants. This stream-powered electric generating plant depends on a steady supply of cooling water.

of Water Resources, Inlets, and Coastal Waterways; by the Division of Water Pollution Control of the State Board of Health; and by the State Board of Water Commissioners.

The department is governed by the Board of Water Resources, appointed by the Governor. The present chairman is Gen. J. R. Townsend of Greensboro, former chairman of the Board of Water Commissioners. Serving with him are P. D. Davis, Durham, Ben R. Lewis, Goldsboro, Judge Dan K. Moore, Canton, C. H. Pruden, Jr., Windsor, S. Vernon Stevens, Jr., Broadway, and Glenn M. Tucker, Carolina Beach.

The Water Resources Act of 1959 directed the establishment of two divisions, Navigable Waterways and Water Pollution Control.

The Division of Navigable Waterways has the responsibility of initiating, planning and executing immediate and long-range programs for the improvement of rivers, harbors, and inland ports, and for flood control and related civil works projects. It also cooperates with Federal agencies in planning and developing navigation, flood control, beach erosion and shore protection projects.



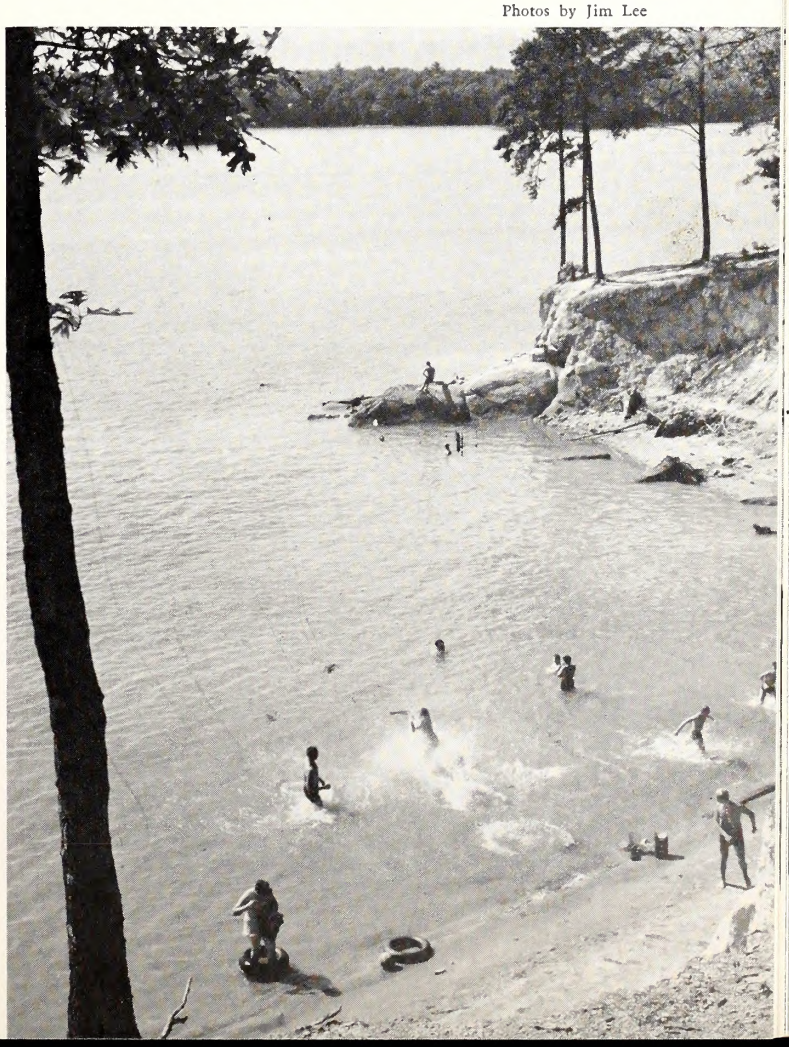
Water for navigation is a vital part of coastal transportation and recreation. Shifting inlets and shoals make civil works projects important in the utilization of the State's waters.

The board fulfilled the other legislative requirement by establishing the Division of Stream Sanitation and Hydrology. It is made up of the former Division of Water Pollution Control of the State Board of Health and the former Division of Water Resources of the Department of Conservation and Development.

Through the Division of Stream Sanitation and Hydrology the department acts as administrative

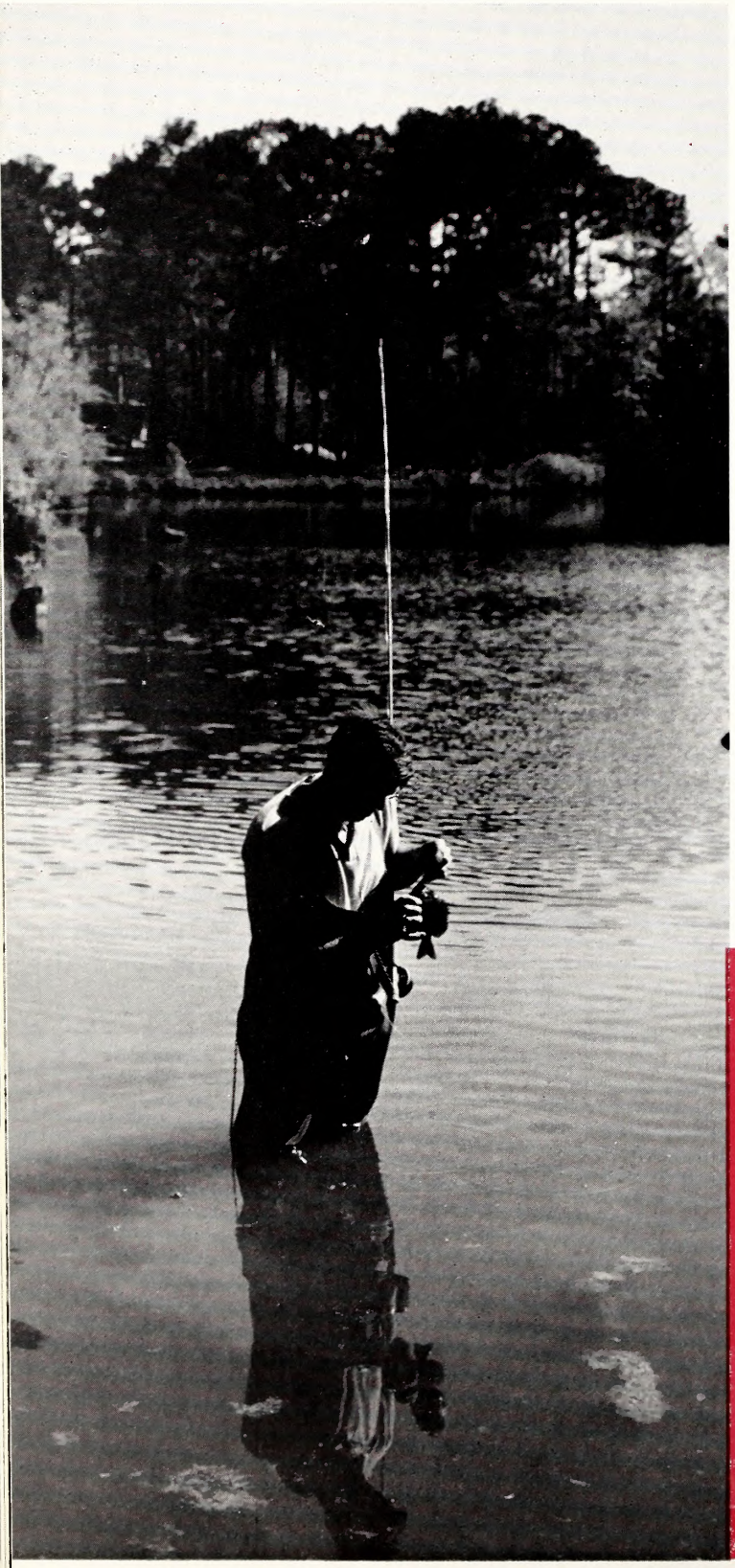
Water for recreation is a result that has come from the impoundment of Piedmont rivers into vast reservoirs. These swimmers in Lake James enjoy a bonus from production of power.

Photos by Jim Lee



Water... Key to Your Survival

North Carolina is among the leading states in small watershed management—the angler below, taking a panfish from his hook, symbolizes the manner in which Tarheels are using their water resources. North Carolina now has an estimated 41,000 farm ponds.



agent for the State Stream Sanitation Committee, the policy-making body of the statewide anti-pollution program. The division also administers the cooperative State-U.S. Geological Survey surface water studies.

The Board of Water Resources felt that it should go beyond the minimum requirement of the law in organizing the department. It established the Division of Ground Water, so that the whole broad field of water resources will be covered.

Responsibilities of the Division of Ground Water include planning, directing and organizing a statewide program of ground water development and conservation. This division works directly with the officials of federal, state, and local government agencies, farm agencies and organizations, and industries and their consulting engineers in ground water problems.

The department is actively at work in a wide range of water resource problems and projects.

The Division of Navigable Waterways is furnishing liason assistance, or performing administrative duties in connection with several civil works projects of the U.S. Army Corps of Engineers.

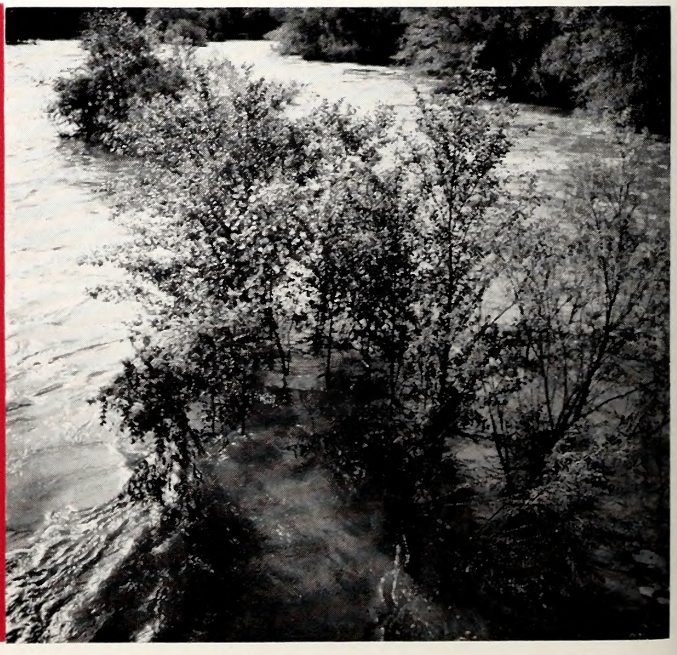
One such project is the joint State-Federal engineering study to learn the best methods to rehabilitate the Outer Banks from Okracoke Inlet to Cape Lookout.

Another project is the Wilkesboro Reservoir, now in the preliminary stages of construction. It will be a 1,470-acre reservoir, designed not only for flood control but also for drought control to increase low flows in the Yadkin River.

Other joint programs include continuing studies of the Neuse and Cape Fear River basins.

Small watershed dams forming farm ponds harness surface water for fish, recreation, irrigation and stock watering. Contrast with a river on the rampage, result of poor watershed control.

Photos by Jim Lee



The 1959 General Assembly enacted another important water resources bill, and the responsibility has been given to the department's Division of Navigable Waterways. This was an enabling act to permit North Carolina to obtain the full benefits of the Federal small watershed protection program under Public Law 566. This program, administered by the Soil Conservation Service, combines land and water management. The division's function is to review watershed work plans. Small watershed improvement districts in the state have submitted applications for 42 projects covering more than two million acres. Eleven of these projects are in operation.

Cooperative State-U.S. Geological Survey ground water studies, in progress in three areas, are handled by the Division of Ground Water. The current work consists of reconnaisance, geological, and hydrological studies in 11 counties. The division also furnishes consulting services in areas where local ground water problems have arisen.

Also, the division is conducting a joint study with the Geological Survey to determine if an adequate supply of potable ground water is available in the vicinity of Okracoke Village. The number of visitors to Okracoke will be greatly increased by the new ferry from Atlantic, and a serious health problem could develop unless a supply of good water is found.

The growing needs of individuals, municipalities, agriculture, industry, wildlife and recreation for clean water adds increasing importance to the State's anti-pollution program, handled by the Division of Stream Sanitation and Hydrology.

A significant achievement was the recent settlement of the extended controversy over downstream water quality in the Roanoke River. The Division of Stream Sanitation and Hydrology and the State Stream Sanitation Committee, along with the Wildlife Resources Commission and others, played an important role.

The anti-pollution program has progressed steadily since it began eight years ago. Studies have been completed on all but two of the state's 16 major river basins, and classifications have been assigned to waters in two-thirds of the state's area. It is expected that all streams will have been classified by the end of 1962.

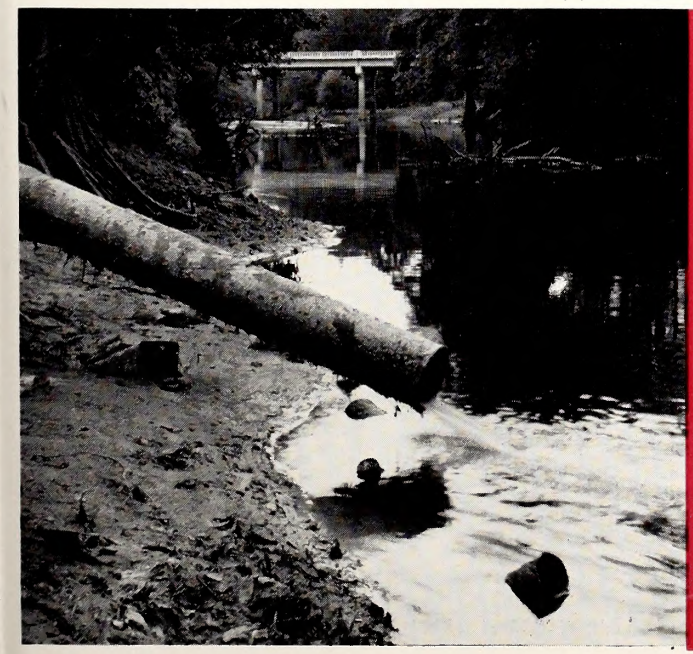
There have been 134 waste treatment projects, costing approximately $42 million, completed or under construction; 12 others, to cost an estimated $12 million, have been approved for construction. Active planning is underway for about 75 other projects.

There, in highlight, are major activities of the Department of Water Resources. There will be much more to come. Officials of the department, and members of the board, have no illusions about the size of the job ahead nor of the support they will need.

Col. Harry E. Brown, the director, said in a recent speech: "It is our intention to work closely with those on the local scene when the problems are felt. This is no super agency, with super powers, nor does it have a magic wand with which it can wave away difficulties. Local leadership and local initiative, with the State providing the basic information and assistance, must play a major part if North Carolina is to make the most of its water resources."

Municipal and industrial pollution have made open sewers of some of our streams. Pollution robs streams of vital oxygen and vastly increases treatment cost for other downstream users.

Photos by Jack Dermid



Clean sparkling mountain streams still cascade down the slopes of western North Carolina. With enforcement of our water-use laws many other streams will again be as inviting as this one.

Twelve Years of Deer Hunt Records

By Frank Barick
Chief, Game Division

TWELVE years of management area deer hunt records, backed up by field surveys, show that deer harvests can be considerably increased on several of our management areas without hurting the brood stock.

Our reports of improvement year after year in the management area deer hunting picture make the announcement a little less startling, but deer hunters should take a close look at the results of the past season and see what these results may mean when projected into the future.

The kill last fall again hit a new high—1,891 deer, 320 more than last year and a five-fold increase over ten years ago. Some areas had low kills, others had average kills, and still other areas had very high kills.

The professional wildlife management worker sees these results in terms of carrying capacity, breeding potential, habitat improvement, hunting pressure, natural mortality and illegal drain.

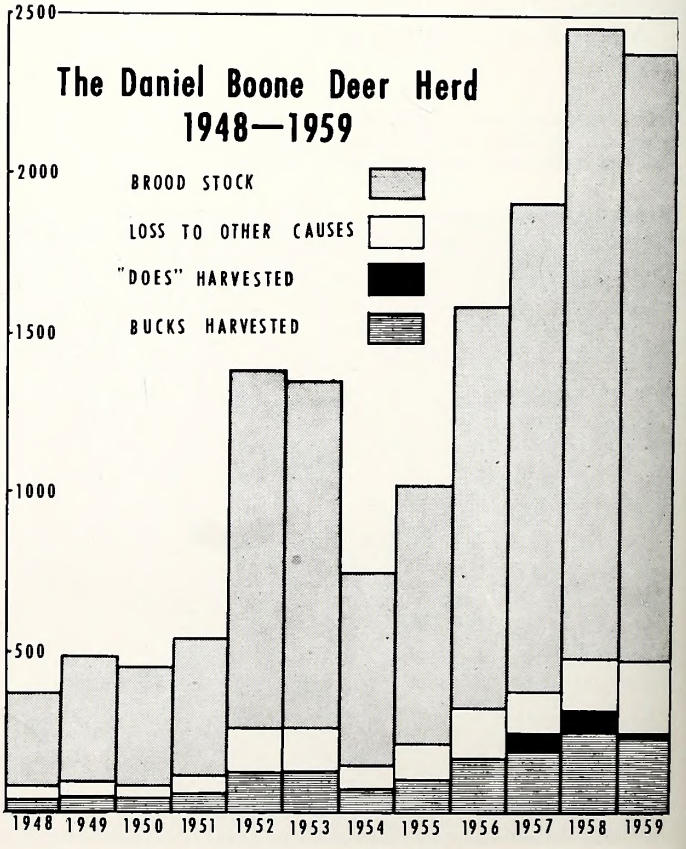
Twelve Principles of Deer Management

1. The sex ratio of deer at birth is 50 bucks to 50 does.
2. Healthy does average 1½ or more fawns per year.
3. "Normal" hunting season age class distribution is approximately as follows:
   - 40% fawns
   - 25% yearlings
   - 15% two and one-half-year olds
   - 10% three and one-half-year olds
   - 10% four and one-half-year olds and older
4. Deer populations are subject to explosive increases and equally drastic reductions.
5. Deer are capable of destroying their own food supply.
6. Deer, especially young deer on overpopulated range, are extremely vulnerable to natural factors such as bad weather, inadequate food supply, disease and predation.
7. Under conditions of depleted food supply deer populations suffer a reduction in reproductive capacity and are more subject to death from natural causes.
8. According to the best information currently at hand the average carrying capacity of unimproved western North Carolina deer range is about one deer to 40 acres.
9. Deer carrying capacity can be increased to a limited extent through practical habitat improvement.
10. Under a buck law the usual kill is about 10% of the population.
11. Under an either-sex or doe law, the usual kill is about 20% of the population.
12. The drain on a population due to natural causes is usually as great as that due to hunting, and is, under certain conditions, capable of being much greater than the hunting drain.

From the professional viewpoint we find that our situation is good, but that it could be better. Our 12 years of records show that we can raise deer and that deer herds respond to management. The records are also beginning to show something that has been demonstrated elsewhere for some time: well-managed deer herds can be cropped much more closely than we have been accustomed to think.

From research all over the country certain rules and guides have emerged that provide a sound basis for deer herd management. Among those listed in the box below left are some that we have learned from comparing post-season populations with harvest records from seasonal hunts. Deer drives and other census techniques can give us an accurate picture of the herds on our refuges.

For an example of the growth of a deer herd on a management area, look at the 12-year figures for Daniel Boone, below. From this picture you can see that this year we only harvested half what we could.



Wildlife Management Area Deer Herds

Area	Saturation Herd 25 acres per deer Area ÷ 25 = herd	1959 Preseason Population Buck Kill x 10
Pisgah	3,900	4,320
Sherwood	1,480	540
Mt. Mitchell	1,040	1,270
Daniel Boone	1,880	2,350
Standing Indian	913	400
Fires Creek	549	520
Rich Laurel	614	420
Wayah	451	120
Santeetlah	1,483	190
Uwharrie	520	840
Flat Top	600	240
Thurmond Chatham	240	290
Sandhills	2,280	2,295*
Holly Shelter	1,939	290
South Mountains	520	30
Harmon Den	569	370
Totals	18,978	14,485

*This figure based on 5 times total kill of both sexes.

Let's look also at deer harvest records for other areas for the last 12 years. As you can see in the tabulation below, there have been new areas added over the years, so that now there are sixteen areas open to deer hunting, while at the beginning of the period there were only four. And while in 1948 your only opportunity was for bucks with gun, last season on many areas you could attend special bow and antlerless deer hunts and increase your chances.

Examination of the records also shows that more than half of our management areas contain deer herds which are at or near capacity levels. In the table above we have compared computed current populations with computed capacity populations for each area. While these figures are approximations based on field checks, they do nevertheless give us values which are reasonably accurate. To compute capacity population we used 25 acres per deer rather than 40 in recognition of the forestry and habitat improvement program on most of these areas. There is some indication that this figure can be improved upon in sections where more pasture plantings can be made.

The figures at hand show that it would be safe to harvest antlerless deer not only on Pisgah, Mt. Mitchell, Daniel Boone, Uwharrie, and Sandhills, but also on Fires Creek, the Rich Mountain side of Rich-Laurel, the Yancey County side of Flat Top, and on Thurmond Chatham.

There is a good possibility that some of the other areas also have sufficient deer to provide antlerless deer hunts. On the Standing Indian area, for example, the buck kill on which the current population estimate is based came from about two-thirds of the area. Much of the refuge is still inaccessible to hunters and if we were to determine the actual hunted area our current and capacity computed populations would be much more nearly equal. Similar statements could be made of other areas.

Another factor which lends a conservative element to our figures is that some of our areas have been considerably under-hunted even in the buck hunts. Santeetlah is so far from centers of population that very few people hunt it. South Mountains, while as yet having only a modest deer herd, is close to big herd areas (Daniel Boone and Mt. Mitchell) which attract the lion's share of local hunting pressure. The dense vegetation at Holly Shelter results in fringe hunting even with dogs.

On areas where the hunting pressure is so low, there is little likelihood that the brood stock would be hurt by the removal of a few antlerless deer.

"Doe" seasons have been held on five of the high-population areas. It is obvious from the record that these doe seasons have not hurt the total population or buck kill. On Pisgah, for example, the buck kills have held at the highest levels in the history of the area. The same may be said of Daniel Boone, Mt. Mitchell, and Uwharrie. Records do not go back far enough to make such a strong statement about the Sandhills but we expect a similar pattern here.

Of the five areas on which we had "doe" seasons last fall, we believe that on only two (Uwharrie and Sandhills) did the harvest of antlerless deer approach the allowable limit. On the three western areas we barely scratched the

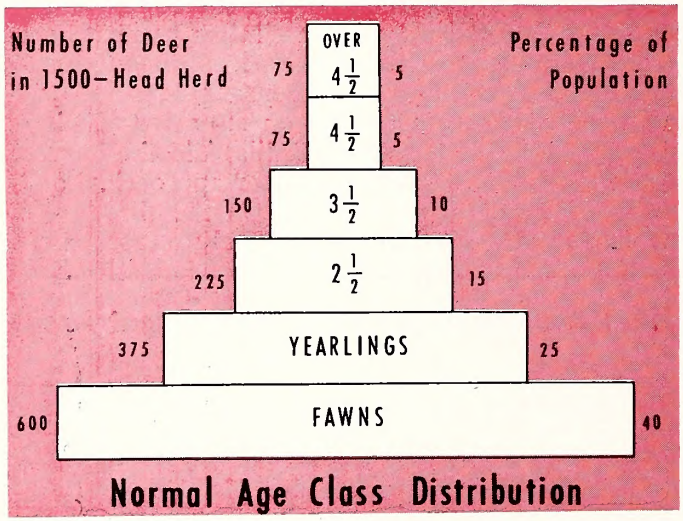
12 Years of Deer Hunt Records on Wildlife Mangement Areas

Area	Type of Hunt	Annual Deer Harvest											
		1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Pisgah	Bucks with gun	244	139	138	208	346	357	187	199	356	362	339	432
	Bow and arrow	—	—	—	—	—	—	—	—	—	—	7	10
	Antlerless	—	—	—	—	—	—	—	—	—	53	69	26
Sherwood	Bucks with gun	40	21	36	35	48	98	49	66	85	68	68	54
Mt. Mitchell	Bucks with gun	31	25	29	39	70	81	81	83	105	136	134	127
	Bow and arrow	—	—	—	—	—	—	—	—	—	—	—	11
	Antlerless	—	—	—	—	—	—	—	—	—	14	62	22
Daniel Boone	Bucks with gun	36	48	44	54	133	132	75	105	161	190	244	235
	Bow and arrow	—	—	—	—	—	—	—	—	—	3	4	2
	Antlerless	—	—	—	—	—	—	—	—	—	53	76	8
Standing Indian	Bucks with gun	—	15	21	24	51	43	17	67	34	68	48	40
	Bow and arrow	—	—	—	—	—	—	—	—	—	—	2	15
Fires Creek	Bucks with gun	—	13	11	3	X	33	26	12	43	45	54	52
Rich Laurel	Bucks with gun	—	—	20	22	21	31	36	12	19	36	27	42
Wayah	Bucks with gun	—	—	12	8	21	18	8	12	14	28	20	12
Santeetlah	Bucks with gun	—	—	—	—	—	14	7	11	20	28	24	19
Uwharrie	Bucks with gun	—	—	—	—	—	—	175	88	102	83	89	84
	Bow and arrow	—	—	—	—	—	—	—	2	2	2	31	22
	Antlerless	—	—	—	—	—	—	—	—	—	55	109	97
Flat Top	Bucks with gun	—	—	—	—	—	—	—	40	31	25	24	24
Thurmond Chatham	Bucks with gun	—	—	—	—	—	—	—	—	28	16	26	29
Sandhills	Bucks with gun	—	—	—	—	—	—	—	—	21	19	25	44
	Antlerless	—	—	—	—	—	—	—	—	—	—	60	415
Holly Shelter	Bucks with gun	—	—	—	—	—	—	—	—	25	18	24	29
	Bow and arrow	—	—	—	—	—	—	—	—	—	—	1	—
South Mountains	Bucks with gun	—	—	—	—	—	—	—	—	—	—	3	3
Harmon Den	Bucks with gun	—	—	—	—	—	—	—	—	—	—	—	37
Totals		351	261	311	393	690	807	661	697	1046	1302	1571	1891

surface. We feel that we could have harvested many more without harming the brood stock. Why we feel this way may be explained by examination of the age class composition of the average deer herd as shown below.

While we know that some does are bred as fawns, let us conservatively assume that the bulk of the annual fawn crop is produced by deer that are one and one-half years old or older. Thus, in a herd of 1,500 we have 900 breeders. Since there may be a greater hunting pressure against bucks than against does, let us assume that our breeders consist of 500 does and 400 bucks.

In a healthy herd we can expect at least one and one-half fawns per doe or about 750 fawns. Adverse weather and other natural factors can be expected to cut this back to 600 fawns by the beginning of the hunting season.



Thus we see that a herd of 1,500 deer can easily produce a fall crop of 600 fawns in a normal breeding season on good range. Assuming that we are going to hold our herd at the 1,500-head level, how are we going to make room for this 600-head increase? A bucks-only season would remove only 10 percent, or about 150 deer. If we take an equal number of antlerless deer we would bring the total legal harvest to 300. This would still leave 300 surplus deer—which would be a 100-percent safety factor as an allowance for drain by winter kill and other causes.

Translating all of this into a formula that might be more generally applied: *If the buck kill approaches or exceeds one-tenth of the capacity population, the area is ready for harvest of antlerless deer.* The antlerless deer harvest may equal the antlered kill without hurting the population. These deer will be gone by next season anyway. To summarize: *A capacity population can stand a 20-percent harvest, half in antlered bucks and half in antlerless does and fawns.*

The suggestion that does and fawns be harvested brings an immediate outcry from some people. This is a fine humanitarian sentiment. But we must realize that this is the portion of the herd which is the most vulnerable to loss through natural mortality. If they are not harvested they will be lost anyway, so that failure to adequately harvest actually results in waste.

If we were to use this approach on all areas that are supporting deer herds at capacity or are near capacity levels next year, it would mean a harvest of about 3,000 deer—about 50 percent more than were taken last fall. As for the future, if and when all areas are brought to capacity level, the annual harvest could be brought to 4,000.

Another factor which emphasizes the justification of an increased kill is the large mast crop last fall throughout most of the deer range. This is expected to result in a larger than usual winter carryover in population and a relatively heavy fawn drop. Barring outbreak of disease we should have even higher deer populations on our management areas than last year. All of this adds up to a bumper crop for the deer hunter next fall.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Commission Officers Elected for 1960

At a meeting held in Raleigh on February 1 the Wildlife Resources Commission elected officers for 1960. Robert M. Carr, Wallace, was elected Chairman of the nine-man commission; J. A. Bridger, Bladenboro, was elected Vice-Chairman; and T. N. Massie, Sylva, was re-elected Secretary. Carr succeeds Thurman Briggs of Lexington as Chairman after serving one year as Vice-Chairman.

National Wildlife Week Scheduled March 20-26

"Water—Key to Your Survival" is the theme of National Wildlife Week this year. Sponsored by the National Wildlife Federation and its state affiliates, the observance is planned to call attention to water conservation problems. Co-chairmen for the North Carolina observance are Rod Amundson of the Wildlife Commission and Neil McKay, Southern Pines, representing the North Carolina Wildlife Federation.

Fishing Regulations Set for Sandhills Lakes

Seven Sandhills lakes will again be open this year as part of a long-range plan to learn more about fishing in small lakes. Fishing is free, but sportsmen are required to check in and out, and their catches provide the information needed to evaluate fishing success. Permits are not required for McKinney Lake, but are for the others: Crawford, Gum Swamp, Broadacres, Kinney Cameron, Bagget's, and Crappie. McKinney will open daily after March 1 and the others will open April 1, Wednesdays through Sundays. Permits are available at the Crawford and Hoffman checking stations.

Fish and Wildlife Service Urges Purchase of Duck Stamps

Although migratory waterfowl seasons are over, hunters and others interested in wildlife are urged to buy Migratory Bird Hunting Stamps, popularly known as "duck stamps," to help the U. S. Fish and Wildlife Service's wetlands acquisition program. Sales of the stamps were down by a quarter this year, according to Post Office officials who handle sale of stamps. Mid-January estimates placed the sales at $4,245,951 for the new $3 stamps. Last year at the same period the former $2 stamps had brought $3,694,515. Had the same number of $3 stamps been sold this year the income would have been $5,541,772. Under a new law funds from duck stamps are earmarked for purchase of nesting, resting, and feeding grounds. Federal officials blamed a poor nesting season last summer and a resulting poor hunting season this fall for the drop in licenses sold.

How Many DUCKS?

Photo Feature by Jack Dermid

DURING late December and early January, a sizable flock of lesser scaup ducks (known locally as blackheads or bluebills) made their headquarters in the mouth of the Alligator River.

"There are at least 10,000 blackheads just ahead of us," commented Dare County Wildlife Protector Stanford White as our outboard slipped past the wild shore of Durant Island. "They are attracted by an abundance of small clams. A few of them became entangled in the nets of commercial fishermen and their crops were packed with a clam about the size of your thumbnail."

The scaup were feeding in a long narrow raft that stretched for a thousand yards. We attempted to ease our boat close enough to take a photograph of them with a telephoto lens, but the scaup had other ideas. They began to bunch up on the water, and while we were still several hundred yards away, flushed in an explosion of excitement. It was a spectacle to see the ducks rise higher and higher to fill the sky. The camera recorded only a portion of the tremendous flight.

Realizing that closeup photography was impossible, Dr. Eugene Hester of State College and I tackled the problem of estimating their numbers, but rapidly came to the conclusion that Protector White's count of 10,000 birds was close enough.

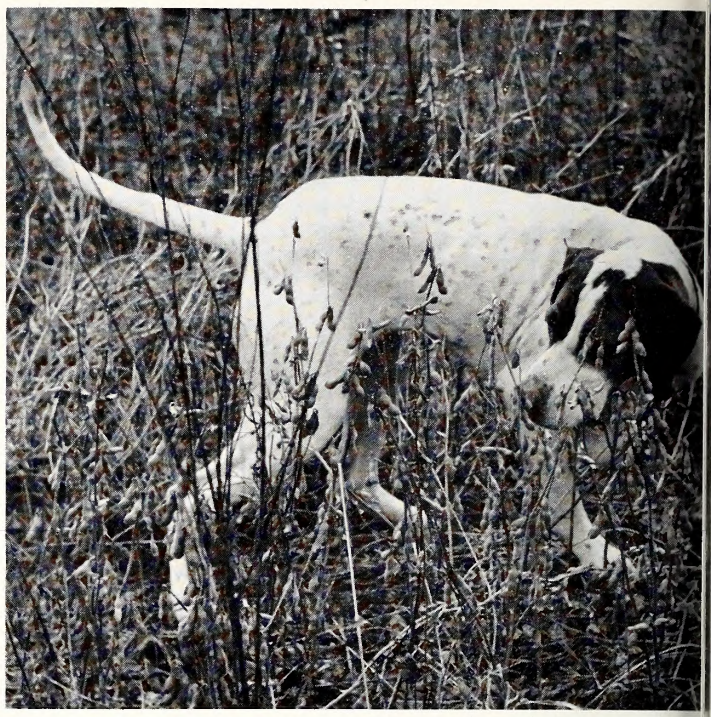
We had just had a sample of the task that faces some 2,000 biologists, refuge managers, game management agents, and wildlife protectors every winter after the hunting season closes. Then, the Bureau of Sports Fisheries and Wildlife with the cooperation of state game commissions takes a nation-wide inventory of our waterfowl. During a designated period in each flyway, the duck and goose populations of all important wintering areas are estimated. The count is made by boat, automobile, and airplane.

It would be impossible to count every duck and goose from coast to coast and arrive at an exact population figure. But when the same skilled observers census the same areas year after year, valuable information concerning population ups and downs is determined. In addition, the survey provides information on the relative abundance of various species in each flyway and trends in population distribution.

When this information is correlated with the results of breeding ground surveys, hunter kill surveys, and banding data, the continental status of our waterfowl is ascertained. This results in better habitat management programs and sound hunting regulations.

But how could anybody count a huge flock of ducks moving along at 50 miles per hour? Or count a raft on the water? You could not count each bird, that is for sure. The secret is to count a segment of the birds, say 1/10 or 1/100, and then multiply the segment counted to arrive at a total. Accurate estimations are the result of practice and the ability to estimate the size of areas filled with birds. Counting waterfowl can get complicated when the species present are noted at the same time. But it can be done! Try your skill on the accompanying picture and then compare your estimate with the total given on page 20.

Dogs on point—an everyday occurrence for a group of Johnston County sportsmen who worked together for better hunting.



This pointer knows there are quail in the annual food patch. Note the ripe soybeans, choice food that will attract quail.

Co-op Quail

PRODUCE BETTER HUNTING

By Charles B. Woodhouse

District 3 Game Biologist

Photos by Jack Dermid

IN a speech made a few weeks ago one of our North Carolina agricultural leaders spoke about the plight of the small "family size" farm in this highly mechanized age. He stated that many farms do not have large enough cash crop allotments to justify the equipment needed for modern farming methods. The need for farmers to join together into cooperative arangements, whether it be a state-wide organization, or a neighborhood group was emphasized.

Such thinking has led to the rise of "vertical integration" in farming. In this practice an organization with financial backing furnishes the farmer with chickens or pigs, equipment, and feed. The farmer in turn supplies the labor to care for the animals and produce the finished product, at a fixed profit per unit. The business helps the farmer and the farmer helps the business—sort of a cooperative affair.

Co-ops, vertical integration, chickens and pigs—what does this barnyard dissertation have to do with wildlife management? Well, let's see. The gist of this discussion is that it takes money to produce almost any product—whether it be pigs or quail. Some individuals may not have sufficient land, others may not have the money. A joining together of available resources will often produce dividends for all concerned that none of the individuals could attain alone. Organization does it! Let's use an example to illustrate what we mean.

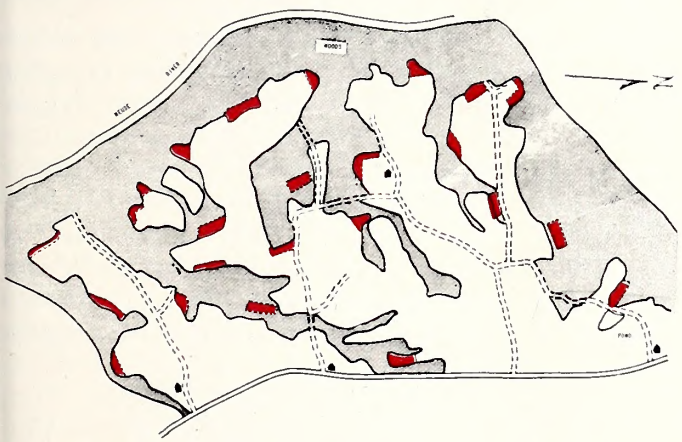
Two years ago a group of ten Johnston County business men decided they wanted to improve their chances for bagging a few quail. There was nothing unusual about these men. They were not "every day in the season" hunters. They simply liked to get out in the field on their afternoon off and be reasonably assured of thrilling to the sight of their favorite bird dog pointing a covey of quail.

Their first move was to organize a group which they called the Neuse District Wildlife Club. Two of the members, father and son, owned a 500-acre farm which they agreed to lease to the club in turn for free membership. This farm consisted largely of abandoned fields, wooded draws, thickets, and

cut-over woodland—pretty good potenital quail range. But something seemed to be lacking. During that first hunting season they could locate only about five coveys of quail on the whole 500 acres.

Their next move was to call on the Neuse River Soil Conservation District for assistance in developing the area. C. W. Warrick, Johnston County Soil Conservationist, provided aerial photos. Since little farming was being done, and quail production was the prime interest, he called in the author for technical assistance. After a close inspection of all parts of the area we determined that lack of a dependable winter food supply was the principal limiting factor.

We drew up a wildlife management plan as shown on the accompanying sketch. A total of 23 one-half acre food patches was proposed. Each plot was to consist of a quarter-acre of shrub lespedeza and a quarter-acre of soybeans. Soybeans attract the birds early and hold them during most of the hunting season. Shrub lespedeza provides a dependable late winter food that carries the birds



Twenty-four food patches (red areas), properly distributed throughout woods and fields, tripled the number of coveys on the 500-acre Johnston County farm. The development plan was devised after a field survey determined that the lack of a dependable winter food supply was the principal limiting factor.

through in good shape, and assures adequate breeding stock. The two foods complement each other and make a mighty effective combination.

Now, it is one thing to have a plan on paper and another to get it on the ground. Well, this group had more than just good intentions. They put up the money and hired a local farmer to do the planting. Ten of the plantings were established in the spring of 1958. The improvement in hunting was considerable during the following season. At least 11 coveys of quail were located on the area and approximately 130 birds were bagged. During the spring of 1959 the other 13 plantings were established. The hunting continues to improve. So far this season (December, 1959) at least 15 coveys have been located.

Now, to get back to the gist of this discussion, which we mentioned earlier; namely, it costs money to produce. A total of $670 has been spent by the club in the two years of development work. This includes the cost of seed, fertilizer, labor, and a caretaker during the hunting season. Thus, cost of establishment amounted to about $40 per year for each of the eight paying members. This does not seem to be too high a price to pay for a good, convenient quail hunting area especially when subsequent costs will be considerably less. However, the main point is that the $40 of one individual would not produce such results. These results were produced by the cooperative efforts of a group —pooling their resources of money and land.

Technical assistance, planting materials, and supervision of planting were furnished free of charge by the North Carolina Wildlife Resources Commission. Such services and materials are available to other groups and individuals throughout the State.

So, this is truly a cooperative affair. Cooperation between club members, landowners, Neuse River Soil Conservation District, and the Wildlife Resources Commission. What else could we call these but "co-op quail"?

More sport and more quail were the rewards of cooperation, a success story that can be repeated throughout North Carolina.

THE SKIPPER

ALTHOUGH boating can be a year-round sport, activity usually picks up speed with the first warm days of spring. The skier may have to wait a few weeks but the pleasure boater can head for open water with comfort from March on through the summer and fall—and the fisherman isn't far behind. But are you and your boat ready?

No doubt you've checked the motor thoroughly —replaced fouled plugs, attended to lubrication, tightened up loosened connections and even revved it up a time or two, making sure it would take off. Certainly any leaks have been caulked in the boat's hull, that shaky transom repaired, and the seats newly bolted down. What about your safety equipment? The Boating Safety Act of 1959 prescribes certain equipment for the various classes of motorboats (see *Wildlife,* August, 1959). These are only legal *minimum* requirements. Consider some of the other articles which may mean the difference between a successful outing and a complete flop, or even disaster. First aid kit. Perhaps a very simple, easily carried, waterproof box containing basic remedies for fish-hooked thumbs or sunburn will do in your case. An anchor, or even two if big water is scheduled. An extra coil or rope, stowed out of the way. A small tool kit—the best of engines sometimes act up. Spare gasoline. Piloting equipment if your cruise is to be extensive, and certainly a basic map and compass even on short trips. An extra flashlight with fresh batteries is always a good idea. And so the list grows. Soon you may give up in dismay and wonder just how and where all this gear can be conveniently stored. Even if your boat is small and doesn't have any built-in storage compartments, a couple of sturdy, water-tight lockers secured in out-of-the-way spots will handle these "extras". Don't leave loose gear scattered over the floor of your boat; and don't put emergency equipment in locked or inaccessible places. When you want it, you want it now!

Worn out or faulty equipment is perhaps worse than none at all. You are subconsciously depending on something that actually will fail you when the need arises. The fire extinguisher that is "frozen up", the cushion life-preserver soaked with oil, the tool kit with no shear pins—all these provide no security. Your life may depend on just such things. A good skipper operates a safe, well-equipped boat, and lives to sail another day.

Outboard Handling Information

Outboard-powered boats like some of those in the photo below are used for a wide variety of water sports—everything from ferrying the family around the local reservoir to plowing through the Gulf Stream chasing blue marlin. All these delightful pursuits require exacting know-how in handling boats, motors, and often boat trailers. Unless you know your boat and motor and what to do with them, stay home. The Outboard Club of America has a well-illustrated, interestingly written booklet that will help you in the science of safe boatmanship. It's entitled "Outboard Handling." Contact the O. B. C., 307 North Michigan Avenue, Chicago 1, Illinois, for a free copy.

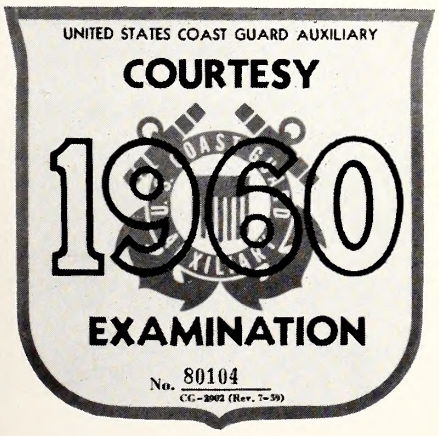
Question Box

Question: I still don't see why the Wildlife Commission is insisting on changing my old Coast Guard boat number. I've had this number for years and would think that Federal Law should prevail. Please clarify this.

Answer: Actually Federal Law *does* "prevail". The Federal Boating Act of 1958 enacted by the 85th Congress on September 2, 1958, makes it clear that all presently-used Coast Guard boat numbers must be replaced either by entirely new Coast Guard numbers in states which have no Federally approved numbering system, (effective date: April 1, 1960) or by new numbers issued by the state agency in charge of motorboat registration when the state's act is passed. In North Carolina's case, the Boating Safety Act of 1959 was passed, giving the Wildlife Commission the responsibility of administration and enforcement, and this law's effective date is January 1, 1960.

Question: Should the cushion-type life preserver be worn on the back or the chest?

Answer:The side straps of this type of life saving device are often misleading: actually they are not designed as "arm straps" since the cushion shouldn't be "worn" at all. Try the cushion (in shallow water!) on your back: you float all right, but face down. Now try it on your chest; better, but it tends to put you at an uncomfortable angle in the water and you may slip out of the device. The straps are to grasp and hold to, simply hanging onto the cushion with the least amount of struggling. For better protection, wear a life vest.



The Coast Guard Auxiliary

If your boat displays this decal, it has passed the Courtesy Motorboat Examination of the Coast Guard Auxiliary and has been declared seaworthy and legally and adequately equipped. You must ask for this examination—it's not forced upon you. Owners found short of the legal requirements are not reported, but are made aware of the deficiencies—and don't get the coveted seal. Your boat should display one.

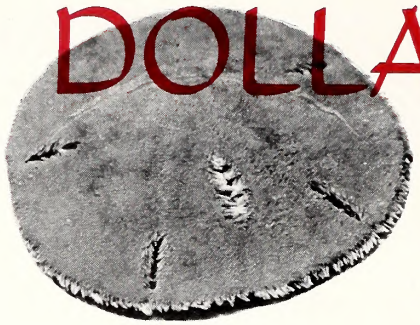
Fire Extinguishers

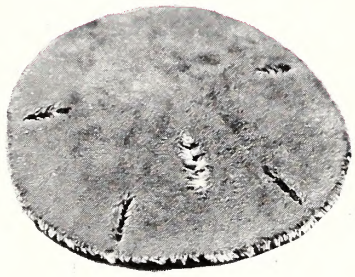
Fire at sea is feared by the seaman like no other scourge. He'd rather face a typhoon with gales of 160 knots than see flames crackling up from the hold or engine room. The best investment you'll ever make could be the purchase of an approved fire extinguisher. Some confusion has arisen over the requirements of this equipment item: unfortunately this isn't alleviated much by reading the section of the Act pertaining to fire extinguishers. Under Section 6 (g) here's what confronts you: "Every motorboat shall be provided with *such number,* size, and type of fire extinguishers, capable of promptly and effectually extinguishing burning gasoline, *as may be prescribed* by the regulations of the Wildlife Resources Commission, which fire extinguishers shall be at all times kept in condition for immediate and effective use and shall be so placed as to be readily accessible." The above italics are there to help make this point: the Wildlife Commission has, in effect, prescribed the number as "zero" in outboard boats less than 26 feet, of *open construction.* None is required, then, for *outboards* of "less than 26 feet in length, of open construction, not carrying passengers for hire. . .". The quotes are from Coast Guard Regulations to which those of the Wildlife Commission must (by law) coincide. But why take a chance? If you never use it, an approved fire extinguisher is mighty cheap insurance.

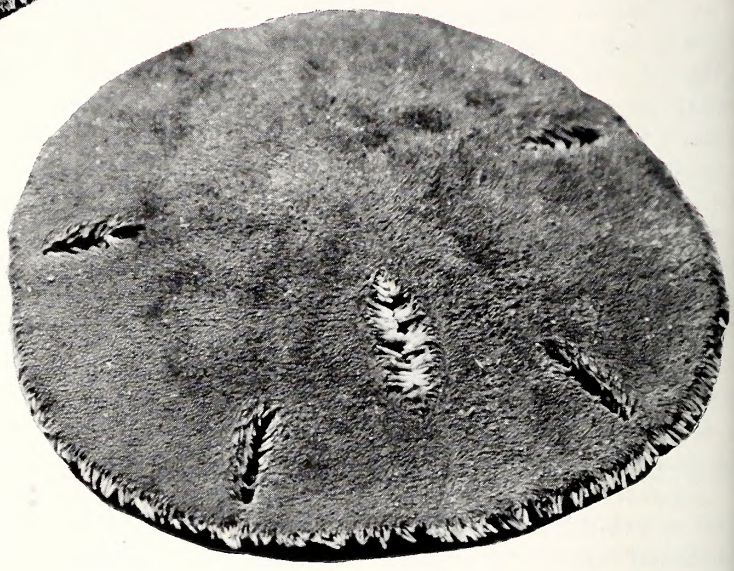
Pictured below are just two of the many Coast Guard approved fire extinguishers. Both types are capable of subduing gasoline and oil fires (Classification "B") and are within the minimum size requirements of 4 pounds for carbon dioxide models (the one on the left) and 2 pounds for dry chemical types. Make sure your boat's fire extinguishers are in good working order and are readily accessible. Everyone aboard should know how to use them for maximum effectiveness.

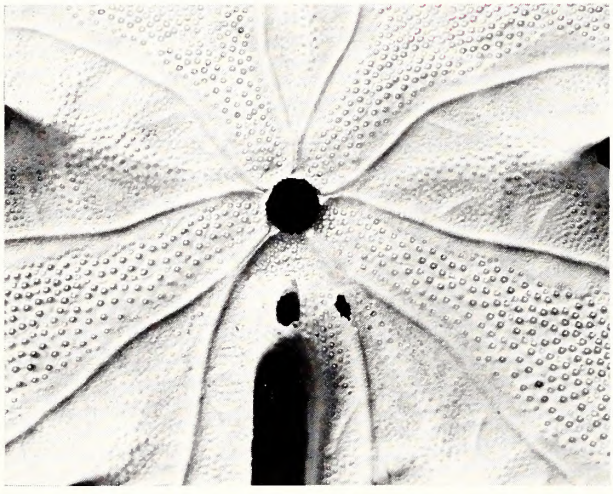
SAND DOLLAR

Nature Short by Jim Lee

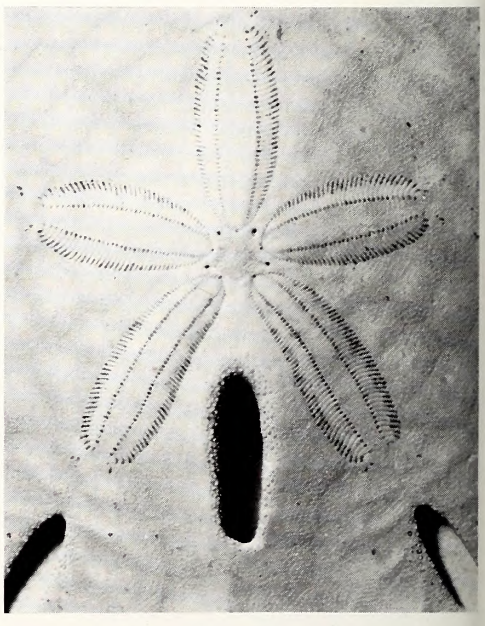








The underside of a sand dollar, magnified here to twice the actual size, shows the tubercles to which the spines are attached, and the tiny mouth into which he fans food.



Above is the top side of a sand dollar, enlarged more than twice. The star-shaped pattern of minute slits shows the relationship to starfish and other Echinoderms. These are the reproductive organs of the sand dollar. At left, about natural size, is the sand dollar at home. Left on the beach by a receding tide, the little fellow is hiding under a hump of sand built up by constantly fanning sand and water through slits in his body. A multitude of movable spines covers the body when the animal is alive, but these spines are worn away in the surf when he dies, and the white skeleton is left for you to find.

Personnel Changes Made in Fish Division

SEVERAL changes have been made among personnel of the Wildlife Commission's Fish Division, according to division chief J. Harry Cornell. Some of these changes reflect a new emphasis on research and management functions in the Commission's nine districts while others are new appointments made to fill vacancies resulting from transfers and promotions.

Fred F. Fish has been made Federal Aid Coordinator for Dingell Johnson funds, replacing Duane Raver who was transferred to the Commission's Education Division earlier. Dr. Fish served as supervisor of fishery management for a brief period before being given the important Federal Aid post. He will supervise the use of Federal matching funds for improving sport fishing.

Fish will also be in charge of a new function of the Fish Division, the monitoring of streams to assure constant water quality under the State stream sanitation laws. Although the Wildlife Commission has no enforcement authority in stream pollution, the Fish Division can measure the effect of pollutants on fish and call attention to situations where agencies with enforcement powers should be alerted.

Arthur W. Dickson, longtime fishery biologist in District 1, has been promoted to supervisor of fishery management. In his new position Dickson will supervise the management activities of all district biologists, and will work closely with research projects to put into practice new techniques learned from research studies.

Dickson has been North Carolina representative on the joint Currituck Sound-Back Bay Study Project, a cooperative project of the North Carolina and Virginia wildlife agencies along with the U.S. Fish and Wildlife Service. He has completed several important projects in his district, including a study of rough fish removal which proved conclusively that a significant factor in coastal waters is the presence of rough fish.

Dickson will be replaced in District 1 by Kenneth H. Johnston, who has been fishery biologist in District 2 for several years. The transfer also means a promotion for Johnston, who will be supervising biologist in Districts 1, 2, 4.

Jack Bayless, who has been a trainee in District 1, has been promoted to district biologist and assigned to District 2, replacing Ken Johnston. Bayless will be in charge of research and management in the Coastal Plain district.

Bill Smith, formerly a biologist trainee in charge of the Warm-water Stream Project on Contentnea Creek, has been promoted to district biologist and assigned to District 3. Smith replaces Harry Powe in District 3, following Powe's resignation in order to resume studies at North Carolina State College.

James Davis was appointed trainee in District 1, and will be employed on the Currituck Sound project as well as in district duties. Davis is a State College graduate, and is a native of Vass.

Lowell Keup has been assigned to replace Bill Smith on the Warm-water Stream Project, and will make investigations on Contentnea Creek. He recently earned a master's degree at Michigan State.

PROTECTOR OF THE MONTH

Walter C. Phipps

Wildlife Protector Walter C. Phipps was born in Alleghany County on September 22, 1926, and graduated from Piney Creek High School. He is a veteran of World War II, serving with the 95th Division and Military Police with the 6th Service Command. He was also formerly with the State Highway Patrol.

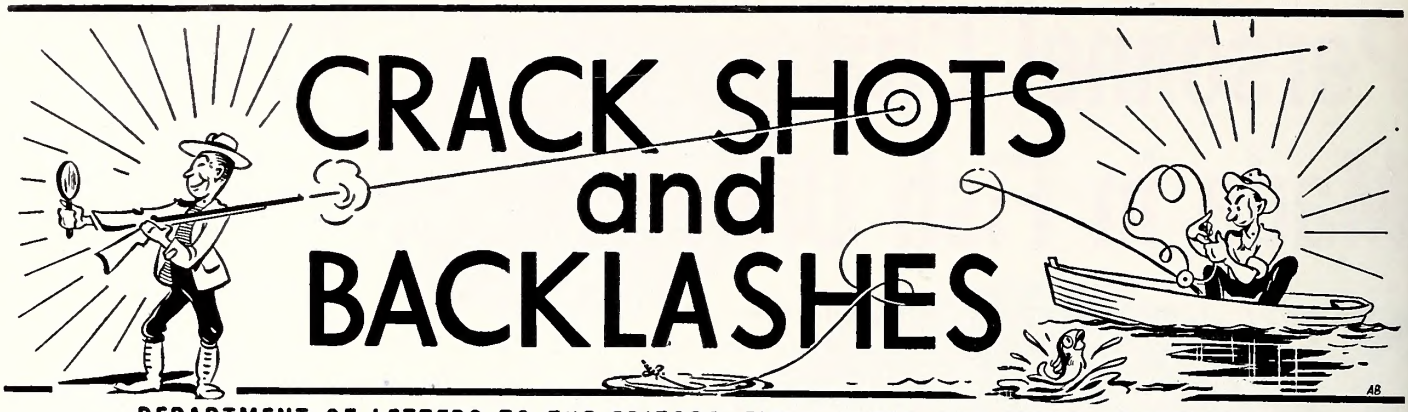
Mr. Phipps was employed as the Davie County Wildlife Protector on June 14, 1954, after having attended the Wildlife Protectors' Pre-Service Training School in 1953. He has also attended both the 1958 and 1959 sessions of the Wildlife Protectors' In-Service Training School. Mr. Phipps is a member of the Southeastern Association of Game and Fish Commissioners, and is also a member of the Board of Trustees for the North Carolina Wildlife Law Enforcement Officers' Association. He is also very active in the county Scout troops and 4-H Clubs, and is a member of the Davie County Wildlife Club.

Mr. Phipps is married to the former Wilma Hampton of Sparta, and they have 5 children, 2 boys and 3 girls. The Phipps' make their home in Mocksville, North Carolina.

ENFORCEMENT RECORD FOR DECEMBER

Persons checked	30,920
Total prosecutions	734
Total convictions	703
Total cases not guilty	22
Total cases nol prossed	9
Total fines collected	$7,761.95
Total costs collected	$4,724.20

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

When the 1959 Legislature set up the boating safety law, it placed emphasis on the need for informing people on the registration, safety and enforcement aspects of the law. Since the law was passed 200,000 information booklets regarding the requirements of the law have been published and widely circulated. Information on the law has been published in this magazine, and dozens of newspaper articles have been written on the subject. Information on the law has been given on many radio and television programs, and personnel of the Wildlife Resources Commission have given talks on the subject to various clubs and civic groups. Currently personnel of the Protection and Education divisions are visiting all marinas in the state, boat dock operators, etc., to inform operators of the provisions of the boating safety act, and to build up good will through cooperation.

Despite the foregoing, the Coast Guard reports that as of January 18, thirty-seven North Carolina residents had applied to the Guard for boat numbers. The Coast Guard relinquished its boat numbering responsibilities as of January 1, 1960, in all states having a state boat numbering system approved by that organization.

Fish Pond Responsibility

DEAR SIRS: I recently heard of a state law that Florida has, and probably other states, pertaining to citizens fishing in private ponds. I thought it was a very reasonable law and also gives the fishermen the benefit of the doubt, to say the least. I do not profess to know the details of this law as it was merely brought to light during a conversation with a friend of mine.

The law, however, is something like this. If a person owns a body of water and charges to fish these waters, a Florida State representative checks the number of fish, size, health factors of growth, etc., and determines whether or not the owner can keep the pond, or what have you, open. In other words there must be so many fish per volume before he may continue to charge people to fish. In addition, if the fish are diseased, overstocked, etc., the State may close the pond. Then under certain conditions, when necessary, and depending on the circumstances, the pond is drained of fish (or the fish poisoned) and the pond properly restocked and a "No Fishing" sign is posted for two or three years.

I could quote names, places, instances, where people charge innocent people who love to fish, money to fish where they knowingly are aware that there is no fish. This is not only stealing on the part of the owner but it gives fishing and the party fishing a bad outlook on N. C. fishing. I might also add here that some of these private ponds were partially financed by the local State and Government. In the process of correcting this poor situation, it would of course increase the numbers of fish in the State of North Carolina.

I would appreciate your comment on this matter and any corrective measures that might possibly result. T. E. SCHOLL, DURHAM

Since the North Carolina Wildlife Resources Commission does not assist in the construction of private impoundments, and does not stock fish in other than public waters, it has no legal control over whether or not persons may charge a fee for fishing, and would have no authority to close a body of water to fishing when such water does not yield a reasonable quantity of fish. We agree that persons charging for fishing privileges have a responsibility for making sure their customers are given reasonable fishing success.

There is, of course the legal expression "caveat emptor," which means "let the buyer beware." Word on fishing conditions gets around fast, and a lake or pond that doesn't provide good fishing soon becomes dry as far as fishing revenue is concerned.

HOW MANY DUCKS?

By actual count, there are 3,683 ducks in the photograph. The tally was made by magazine secretary Vyrettie Sherron, who stuck a hole in each duck with a pin as she counted it to avoid counting the same bird more than once.

Don't be concerned if your guess is off by a 1,000 or more. The size of flocks is deceiving, and it takes practice to make accurate estimations.

Pollution From Mining

Mr. J. B. McKinney
Bakersville, North Carolina
Dear Mr. McKinney:

Your letter of inquiry regarding pollution in the North Toe and South Toe rivers was referred to this office by the Wildlife Resources Commission, publishers of **Wildlife in North Carolina.**

The problem created by the dumping of the waste water from the mica and feldspar operations is one that has received a great amount of attention from this office. The waters of both rivers have been classified by the State Stream Sanitation Committee. Most of the polluters have notified this office of their plans to prevent the discharge of waste into the surface waters by providing treatment of the waste water or changing their present means of operation.

As you know, the changing of the recovery process and the construction of waste treatment facilities require both time and money. Recognizing this fact, the State Stream Sanitation Committee has given the mines and recovery operations adequate time to voluntarily solve their waste problems. It is anticipated that

by the end of 1963, most of the silt and waste now discharged into the North Toe and South Toe rivers will be recovered or treated to such an extent as to once again establish these streams as good fishing waters.

We hope that we have satisfactorily answered your questions and that you, along with all the other sportsmen of the area, will continue to show an interest in the beautiful natural resources of our state.

Sincerely,
E. C. Hubbard, Director
Div. of Stream Sanitation & Hydrology
Department of Water Resources

It's Out of Our Hands

DEAR SIRS: I fish on the coast for trout but have not caught any this fall. I was down for a week during the holidays, but got no fish.

The shrimp boats were right along the shore. I understand they are dragging their shrimp nets, picking up small trout, spots, and other fish; taking them in and selling them for scrap fish. Could anything be done about it?

I think this is the reason there are no fish for the sport fishermen. This was at Long Beach, North Carolina.

Hope to hear from you at an early date in regard to the shrimp boats. D. S. STALEY, HIGH POINT

Although the Wildlife Commission does not have jurisdiction over salt-water fishing, we receive numerous complaints similar to this one. Considerable research is needed (and under way) to iron out problems such as this one. Regrettably, we don't have the answers.

New officers for 1960 were elected at the February meeting of the Wildlife Resources Commission. They are, from left to right: J. A. Bridger of Bladenboro, vice-chairman; Robert M. Carr of Wallace, chairman; and T. N. Massie of Sylva, secretary. Chairman Carr previously served as vice-chairman in 1959.

Better Than an Ant-Stomping Contest

Tom McKnight, Greensboro hardware dealer, bought subscriptions to *Wildlife* for some of his friends and business associates. Tom passed this correspondence along to us.

DEAR SIRS: We got a laught out of this, thought you might enjoy it too. TOM McKNIGHT, GREENSBORO

DEAR TOM: I am delighted to know that I am to be the recipient of a subscription to Wild Life in North Carolina through your kindness and thoughtfulness.

I have been a resident of North Carolina for five years without having attended any thing more exciting than an ant-stomping contest, and now to know that there is a publication that can direct a gay ole dog to some interesting night life.

Yes sir, I sure appreciate your gift, cause I like Wild Life be it in North Carolina or Miami, Florida.

Thanks much, Tom. TOMMY ATKINSON, GREENSBORO

P. S. I also like hunting and fishing, too.

Old, Old Deer

A doe deer with an interesting history recently was killed by an automobile in Missouri, according to Conservation Commission information relayed to the National Wildlife Federation. An ear tag showed that the deer, no. 466, first had been live-trapped and released as an adult 14½ years ago. She thus lived to a ripe old age, considering the fact that Missouri records indicate less than five per cent of the deer reach beyond their fifth birthdays. She had traveled 40 miles from the release site, either negotiating the Lake of the Ozarks or going around it, and this year had given birth to at least two fawns.

New Use For Spinners

The National Wildlife Federation has learned that fishing spinners are being put to a new use in Oklahoma—to frighten woodpeckers. The flash, motion and humming noise of spinners dangling in the wind apparently are successful in driving woodpeckers away from public power poles.

A watermelon forms a protective roof over this quail's nest. The eggs were laid on bare ground in a depression, and ten were deposited before the nest was broken up by a stray dog. The unusual nest was discovered last August near the home of Wildlife Commissioner G. E. Beal of Red Oak and photographed by P. K. Gravely of Rocky Mount. Free-hunting dogs and cats are destructive during nestingtime.

Winners of WILDLIFE'S subscription sales campaign are shown receiving their cash awards from Commissioner Thurman Briggs of Lexington (right). They are, left to right: Oscar Chadwick, who sold 942 subscriptions; J. D. McLean, 997 subscriptions; Eugene Jones, 1,522 subscriptions; and Cecil E. Allran, 2,015 subscriptions.

The contest is held every fall among Commission personnel. This year, 21,107 subscriptions were sold to push the circulation of WILDLIFE past the 70,000 mark.

The Public Service Company replaces up to 1500 rural transmission poles per year and 12 per cent of them are victims of woodpeckers, mostly when they drill in to create a nest. The birds, having wrecked one pole, will drill a new hole in exactly the same place on the replacement and shun dummy decoys. Woodpecker damage to poles is greater in areas where forest trees are strong and healthy. The spinners, however, show promise of reducing pole damage.

Private Waters?

DEAR SIRS: I have a question: A group buys a mountain boundary of land and builds a fair sized lake on it, then divides the remainder into lots. Most of them build a cottage, a boat house, and a fishing pier. A guest of one from another county fishes a part of a day from the pier. Now is the guest required to have a state, or county license or daily permit to fish? I will appreciate an answer as I have been advised both pro and con. Thank you very much. C. P. REAGAN, WEAVERVILLE

If the water on the lake arises on the property, and otherwise comes within the definition of private waters (such may be jointly owned), persons from another county who are house-guests of one of the owners would not need a license. If, however, they are simply visitors for the purpose of fishing, they would need a state license or a short-term fishing permit.

Shrimp Travels

Tests conducted by the Galveston (Texas) Laboratory of the U. S. Fish and Wildlife Service show that marked shrimp moved more than 100 miles and tripled their weight in the short span of four months. Some brown shrimp traveled 25 miles in one week!

From South of the Border

DEAR SIRS: For years bird hunters all over eastern North Carolina have been saying that the present-day bobwhite isn't what he used to be because of Mexican quail that were supposedly imported into North Carolina some 20 or 25 years ago and crossbred with the original bobwhite.

Frankly, I don't believe a word of this and so far as I can tell the bobwhite quail of today is exactly the same bird as the bobwhite quail of 20 years ago. Changes in his habitat have made him wilder and driven him to heavier cover, but I believe that he is still a pure bobwhite with no Mexican strain mixed in. How about it? CHARLES O. WHITLEY, MOUNT OLIVE

Thank you for your interesting comments regarding Mexican quail. Although a number of these birds were imported 20 years ago, and there is known to have been some interbreeding, it is the consensus among our biologists that the tremendous preponderance of native birds and the inferiority of the Mexican strain has almost, if not entirely, eliminated the Mexican quail from North Carolina habitat. —Ed.

Bow and Arrow for Small Game

DEAR SIRS: I should like to pose the question, if the Wildlife Commission had ever considered or would consider permitting the use of bow in bow weights of less than 45 pounds during the small game seasons; except where said season would overlap into the big game season. This seemingly would introduce many target archers afield to bow and arrow hunting for all types of game, who normally have not considered the sport, due to the limited annual use they would have for a heavy bow, against the extra cost of the additional equipment.

On several occasions while deer hunting some nine days in the Uwharrie wildlife area during 1958, to hear a fusillade of from three to five shots at rapid fire, was not uncommon. Also I believe that checking stations can attest to several shotup carcasses encountered each year, where a single well-placed round, fired actually in the same elapsed time, would have brought down most any quarry with certainly less danger, to say nothing, of the nuisance caused to other hunters.

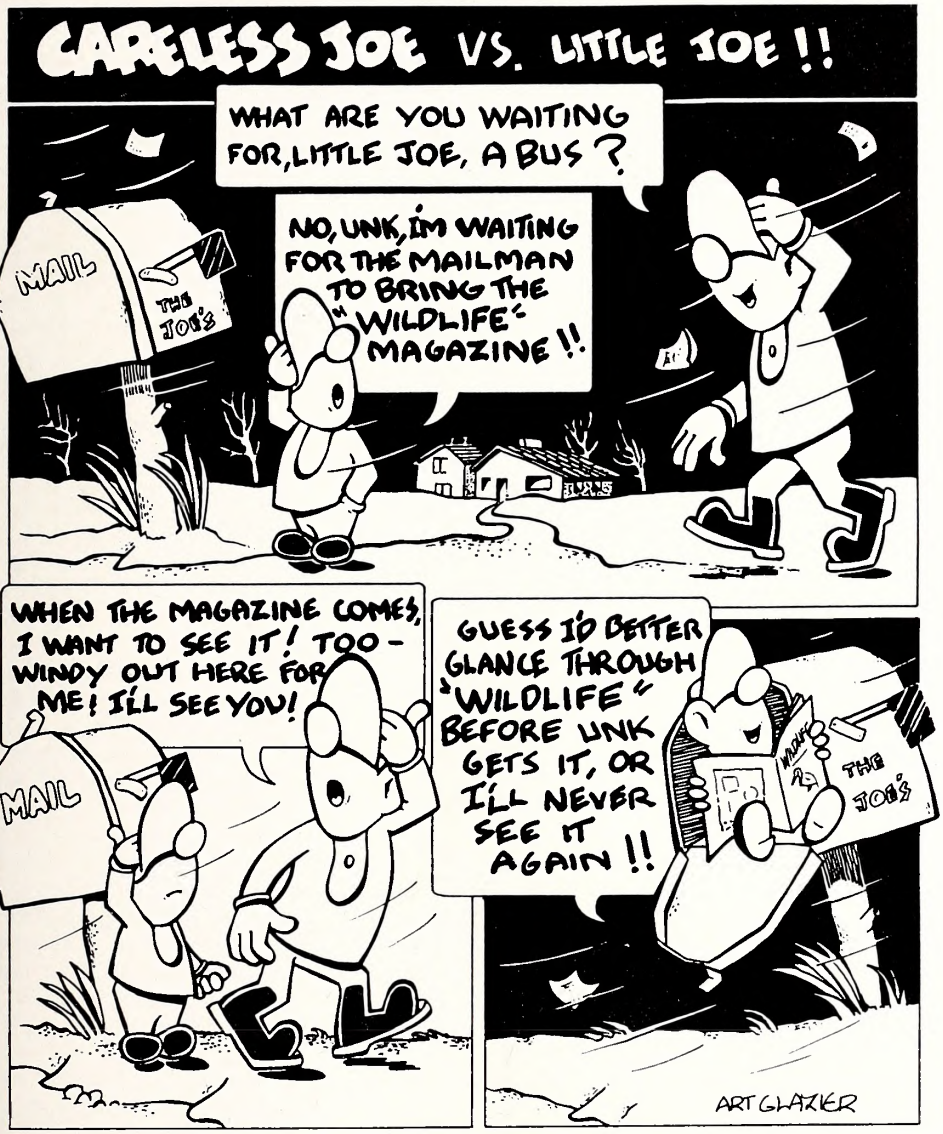
Often, through the fear of carelessness on the part of other hunters during the gun season, many "good" hunters have passed up the fall sport entirely.

Many hunters, too, tend to rely more on the capability of the gun itself, rather than their actual skill to use it or trying to improve their actual skill to use it or trying to improve their ability to hunt. Respectively, archery, in this instance, is producing many part-time hunters, who have pursued a new interest in bow hunting, for big game for the reasons above.

Consequently, I believe this is producing better all around sportsmen afield in all types of hunting. In gun hunting with modern weapons, essentially all the hunter actually needs to do is to "see" the game and the rest is based on his skill, with the gun as a tool, to kill game at any visual range in most hunting areas.

In effect, the bow and arrow requires positioning one's self more carefully along the fresh game trail, in proximity to feeding or bedding areas, recognizing most frequently used trails and new approaches, holding greater respect for wind conditions, time of day, silence in movement, field of fire and a host of other considerations, to get in that perfect shot, due to some limitations of the bow.

However, as a still hunter, and patience permitting, a well selected stand will afford many many bow shots that are seldom in excess of twenty to thirty



yards and usually much closer. Last year I had the occasion to "whomp" a big doe on the rump with one end of my bow, as she chanced to linger beneath my tree stand. A small spike buck crossed beneath me, before I shot him standing broad-side fifteen yards away.

Leave it to anxiety of the ridge runner; he will move many deer for you and chances rest he'll never see them himself. Try trailing this fellow cautiously, a hundred or so yards back and not infrequently you'll find a big buck doing the same thing.

The broadhead arrow of today, though lacking the shocking power of a bullet, is designed to hemorrhage big game. It will very effectively produce that big buck after a brief run when solidly hit almost anywhere in the trunk of the body, neck or thighs. The 45-pound bow easily provides clear-through penetration on broadside shots with sharp broadhead arrows, cutting virtually everything except the heaviest bones. This means quick clean kills, induced by bleeding from large open wounds and good blood trails, if the deer is permitted to lie down and is not pursued for at least twenty to thirty minutes.

Hit for hit, average bullet wounds leave only small pencil holes in comparison to broadheads, due to insufficient expansion of projectiles in many of the flank and soft flesh areas. These "wounding shots" easily clot up and lack sufficient bleeding, leaving scant blood trails, often to maim or cripple the deer for life or induce death sometimes days later without ever being found. In the meantime the same deer retains enough energy to get up many times when pursued and can sometimes run for several miles. I have owned several guns and hunted for several years on both coasts and in the Pacific Northwest, but I sincerely believe that I have enjoyed more and most ceratinly learned more about hunting since I picked up the bow and arrow, two seasons ago here in the Carolinas.

I believe archery, in addition to being one of the fastest growing, year around sports in the Tarheel State, probably does more and could do more for the promotion of better sportsmanship, safety, enjoyment, and assistance in better game management and will certainly leave less crippled game, than any other combination of efforts expended.

Here is hoping the Wildlife Commission, for the reason above, will consider the possibility of permitting the use of target-weight bows of perhaps thirty pounds minimum for small game hunting seasons only; and also the potential bow hunters who take up the sport as a result, will carry over to their gun-hunting the care and sportsmanship learned using the bow and arrow of making that first shot count. RICHARD E. CLAPP, JR.
CHARLOTTE ARCHERS

The Act which permits the use of bow and arrow for taking game is very specific—the bow must have a minimum pull of 45 pounds and the arrow must be non-poisonous, non-barbed, and non-explosive, and must have a minimum broadhead width of seven-eights of an inch. These minimums were set by the General Assembly; the Wildlife Resources Commission does not have the authority to alter them. Only the Legislature can make the change that would allow you to hunt small game with a bow having less than a 45-pound pull.

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ANIMAL TAILS

Animal tails are excellent examples of Nature's adaptations. In nearly every activity you will find animals using their tails for some purpose—the wild turkey spreads his into a huge fan during courtship, the flying squirrel glides from tree to tree using his broad tail as a rudder, the skunk gives a warning with his striped tail before squirting his powerful scent in times of danger, and the alligator uses his broad and scaly tail as a weapon. Look closely at the animals around you, and see if you can spot other uses for these wonderful appendages. Isn't it a shame that Man has lost his tail through evolution? Think how handy it would be to have—but, wouldn't it pose problems for dressmakers and tailors?

The white-tail's flag serves as both a register of his emotions and as a danger signal.

A fish depends on his tail for steering and some propulsion.

Woodpeckers rely on their tails for support.

A beaver's tail serves as a rudder, as a prop, and as a means of communications. By slapping the water with his tail he gives an alarm.

The fox keeps his wet nose warm with his tail. The brushy tail is a prize for hunters.

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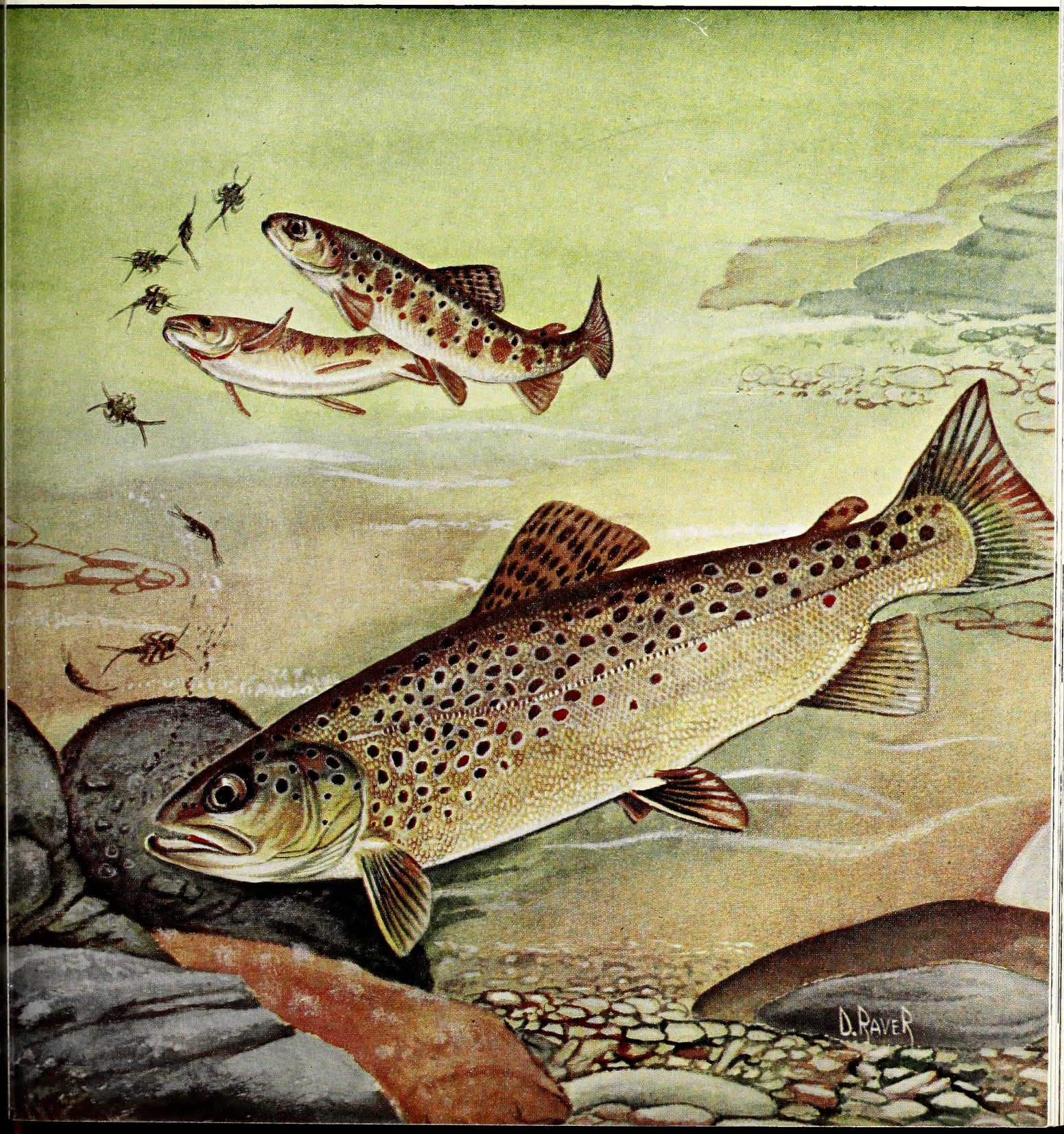

Photo by Jack Dermid

Delight of Spring

The snowy blossoms of bloodroot peeping above the dead leaves of winter bring smiles of delight to the faces of Anna Smith (left) and Pat Andrews of Paul Braxton School, Siler City. The youngsters pause to find the flower in their book while hiking along their school's nature trail. Sponsored and developed by students, faculty members, and interested parents, the nature trail has opened the eyes of hundreds of children to the world of nature.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

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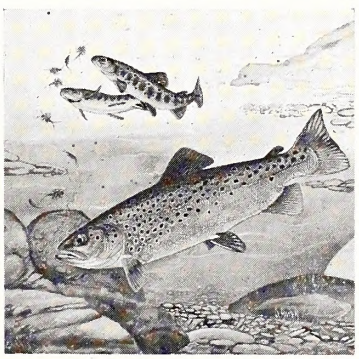

The brown trout, one of North Carolina's three species of mountain trout, was imported in the 1870's from Germany and Scotland. Now widely distributed, the brown is found in the lower and warmer levels of trout streams. The adult shows the characteristic chocolate brown back and large bordered spots. The young browns above show juvenile parr marks, bars which last into the second year. Adults feed on crayfish and minnows, while the young browns are fond of such aquatic insects as the stonefly nymphs shown in Duane Raver's April watercolor painting.

Wildlife In North Carolina recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

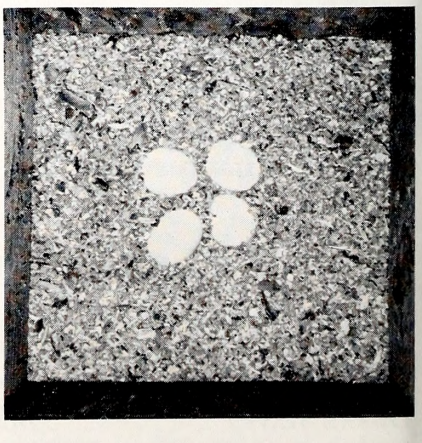
Build a Nesting Box for

Adventures with Wood Ducks

Photo Feature by Jack Dermid

Dr. Eugene Hester of State College, who erected most of the boxes on his father's farm pond, flushes an incubating female as he begins to open box. Keeping up with nesting activities provides unlimited outdoor enjoyment, and occasional visits or fishing near boxes do not interfere with nesting.

About three inches of coarse sawdust and shavings are placed in the bottom of boxes for nesting material. This nest appears empty, but when the . . .



. . . covering of shavings was brushed away, four newly laid eggs were revealed. The first 5 or 6 eggs are hidden in this way by the wary female.

With the growing shortage of suitable tree cavities, wood ducks welcome homemade nesting boxes. In words and pictures, this feature follows spring activities at a Tarheel pond and describes the proper methods of constructing and erecting durable boxes.

SINCE the first nesting box was erected over five years ago, Dr. J. R. Hester's pond near Wendell has been a Wake County wood duck "factory." Nesting success has remained high every year, and it is doubtful if any other eight-acre area in the Southeast approaches its productivity.

In the spring of 1955, five boxes were used 6 times to produce 77 ducklings. Eight boxes in 1958 resulted in 7 new wood duck families—a total of 126 ducklings.

Production dropped slightly in 1959 when 8 nests produced 115 young. Fourteen boxes were in place, but 6 of them were erected too late (mid-March) to attract the earliest nesting hens.

Conservation in Action

The yearly success at Hester's pond is truly a story of conservation in action. It is the story of individuals using knowledge provided through research and doing something themselves to boost wildlife. It is wildlife management on a personal level—a worthwhile contribution for governmental agencies cannot do all the work that is needed to maintain all wildlife populations everywhere.

If there is a game species that deserves personal attention, it is the wood duck, a fabulously beautiful bird that has faced a tough battle for survival through the years. Overshooting was so severe during the early part of the century that the continental wood duck population dropped to a dangerously low level and the gunning season was closed in 1918.

Dwindling habitat also took its toll of birds. Habitat is still being lost through swamp and marsh drainage, and lumbering operations continually remove the large trees that provide nesting cavities.

The wood duck responded to the closed season, and by 1941, shooting was resumed in some states with daily bag limit of one bird. The daily limit was increased to two birds during the 1959-60 season. The increase in the number of farm ponds and reservoirs has replaced some of the lost habitat.

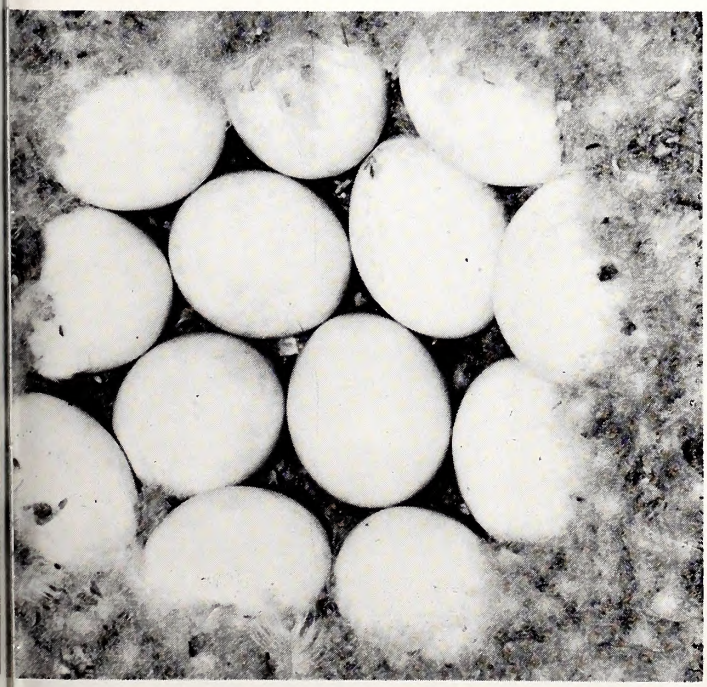
But the prospects are not as bright as they could be, for it takes Mother Nature a long time to make cavities in trees large enough for wood duck nests. It is in the provision of nesting sites that individuals can give Woodie a boost.

Homes for Wood Ducks

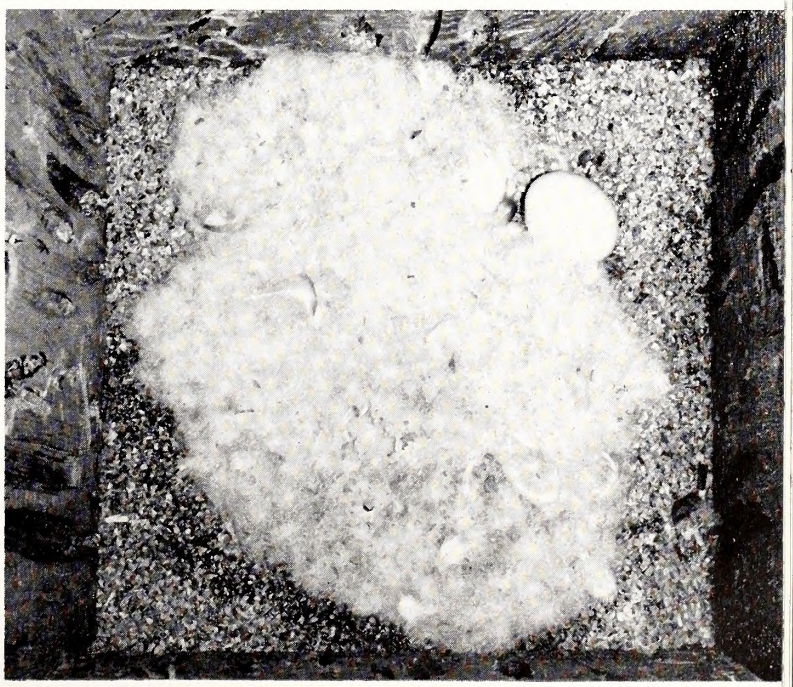
Many plans have been devised for the construction of both wooden and metal houses. Even ammunition boxes, nail kegs, and 100-pound grease drums have been used with some success. Make-shift wooden boxes are not very durable. Metal ones are difficult for individuals to build unless they have the proper tools and know-how, and their interiors have to be treated with automobile undercoating so that the young ducklings can escape upon hatching.

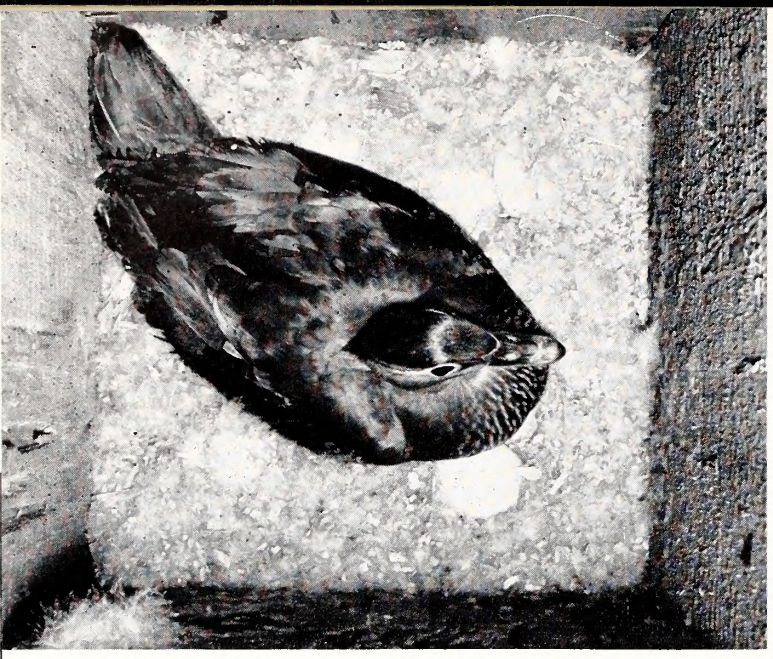
Anyone handy with a saw and hammer can build the wooden house in use at Hester's pond and at Orton Wildlife Refuge near Wilmington. Complete construction details are given in a drawing on page 10. Constructed of inch-thick cypress lumber and galvanized nails, the box will last many years and require little maintenance.

One egg is laid early each morning until the clutch (average 10 to 12 eggs) is complete. When the seventh egg is laid, the hen begins to pluck down feathers from her breast to help cover the eggs. More down is added daily throughout the . . .



. . . laying period. The wood duck usually begins incubation on the day following completion of the clutch. When the hen is flushed from the nest, the eggs are left exposed (left). When the hen leaves on her own accord, she covers them with down.





The hen alone incubates the eggs for about 30 days, leaving the nest in early morning and again in late afternoon to feed and visit with her mate. This female has her feathers drawn tight. Usually they are fluffed out to keep the eggs warm.

If pine or other less durable wood is used, it should be treated with a clear preservative containing pentachlorophenol, a preparation sold under various trade names. Treated boxes should be well dried before their erection.

Rough-sawed cypress is the best wood. Besides being rot resistant, its rough surface permits the newly hatched ducklings to climb out of the nest. If dressed lumber is used, tack a three-inch wide strip of fine hardware cloth on the inside from the bottom to the entrance hole.

An elliptical shaped entrance hole, 3 inches high and 4 wide, is important, if the box is to be erected in areas containing raccoons, a serious nest predator. This will curtail the raids of large coons only. If a metal predator guard (see construction diagram on page 9) is used, a four-inch circular entrance hole can be made. This is easier to cut than an elliptical one.

Twelve-inch cypress is not too difficult to obtain, but finding the 14-inch width for the roof may not be easy. If two pieces are put together, waterproof the crack with a roofing compound or cover the top with a shingle or sheet of galvanized metal.

To complete the box, add about three inches of coarse sawdust and shavings for nesting material.

Erecting Boxes

A good wood duck box is not worth much unless it is erected properly in an area where it will likely be used. And a box that is vulnerable to predators is worse than no box at all.

The wood duck is primarily a bird of woody swamps, snag-filled mill ponds, and rivers bordered by bottomlands. It occurs throughout North Carolina where suitable habitat is available, but is most common in the Coastal Plain. It often frequents farm ponds that are located near rivers and other bodies of water.

It is best to erect boxes in places where wood ducks are known to occur. If at all possible, the boxes should be placed on poles or sound snags surrounded by water. This makes them easily found by females searching for nesting sites and less available to predators.

Placing boxes over water—even on steel pipes—is no guarantee that they will be completely safe, but if the entrance hole is faced away from shore, they will be as safe as any natural cavity.

A wood duck box can be predator-proofed with a little extra effort. Place the metal guard shown on page 9 below the nest. Be sure it is tight against the mounting post, however, to keep snakes from squeezing through.

To simply nail a box to a tree on shore is to invite squirrels, raccoons, or opossums to take over. Wooden boxes erected over land should be mount-

Sometimes more than one female lay their eggs in the same box. This "dump nest" contained 38 eggs and is probably the efforts of three hens. None accepted the responsibility of incubation. In another nest, a female hatched 22 of 29 eggs.

Black chicken snakes have destroyed several nests at Hester's Pond by swimming out and climbing into the boxes. Eggs are swallowed whole. A metal guard would have prevented the raids. Nationwide, the coon is the most serious nest predator.

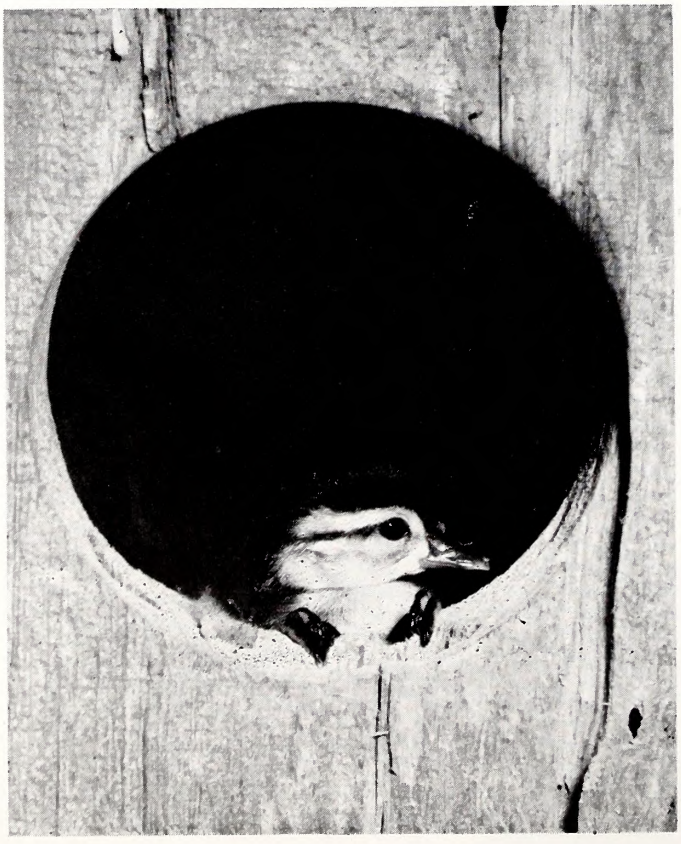
One duckling hatched, others on the way. Once an egg begins to hatch, it may take 30 minutes or more before the duckling is free. Eggs are pipped (tiny crack at big end) day before.

With hard "egg tooth" (white spot on the end of bill), each duckling cuts a door in large end of egg and finally struggles to freedom. Several hours may pass before entire clutch hatches.

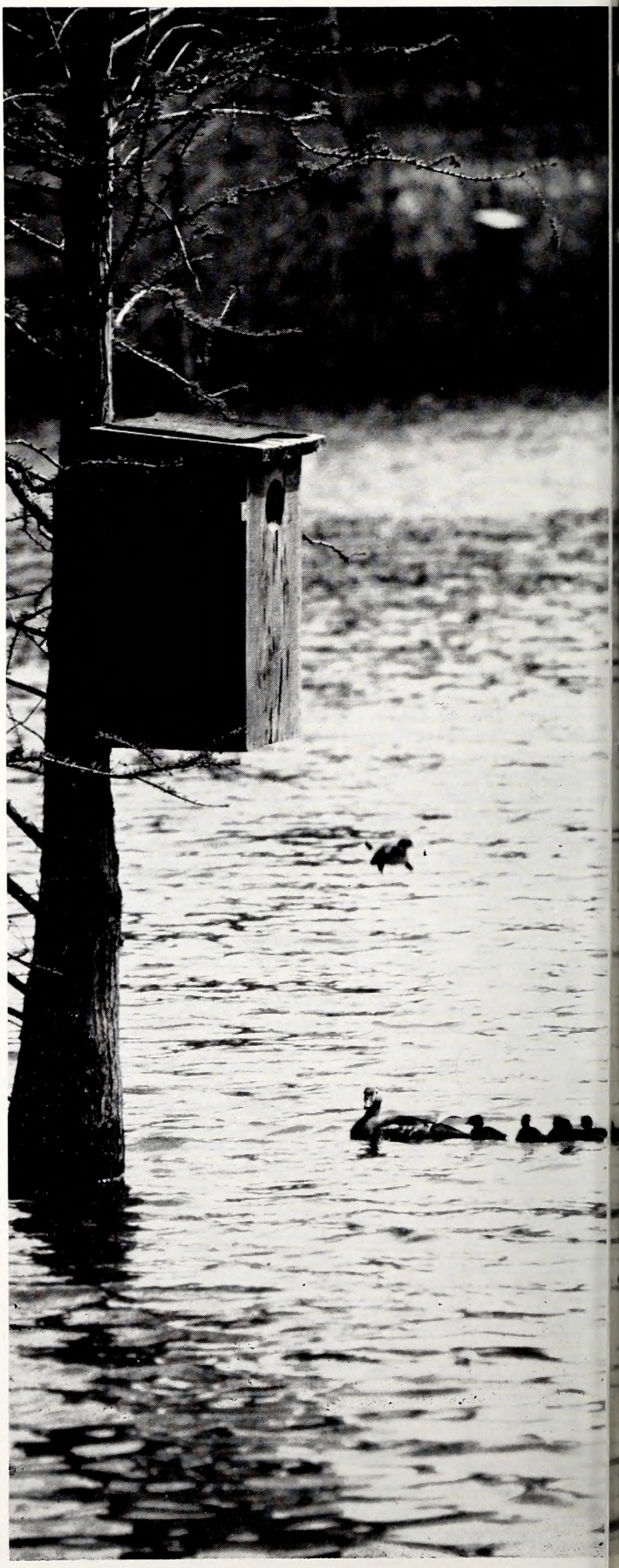
The female broods her new family in the nest overnight. Next morning, the ducklings are dry, fluffy balls of down, ready for their big adventure. Only 6 of 13 nestlings show faces.

Sometime in the morning, usually after after 8 o'clock, the female perches quietly in the box entrance. When she is satisfied no danger threatens her young, she drops to the water and . . .

. . . utters a series of subdued calls. The day-old ducklings are triggered into action by the notes and climb to the entrance hole. Sharp claws and rough lumber make feat possible.



One by one, sometimes two at a time, the ducklings appear in hole and then leap into the outside world, their webbed feet outstretched and tiny wings beating as they plunge downward. Regaining balance on water, they swim quickly to hen's side.



ed at least 10 feet high on poles, protected by a guard, and placed away from overhanging limbs to keep predators from jumping to them.

Boxes over water can be erected as low as five feet. This height makes it easy to observe nesting activities and facilitates maintenance. If water levels fluctuate, the houses should be placed well above the high water mark.

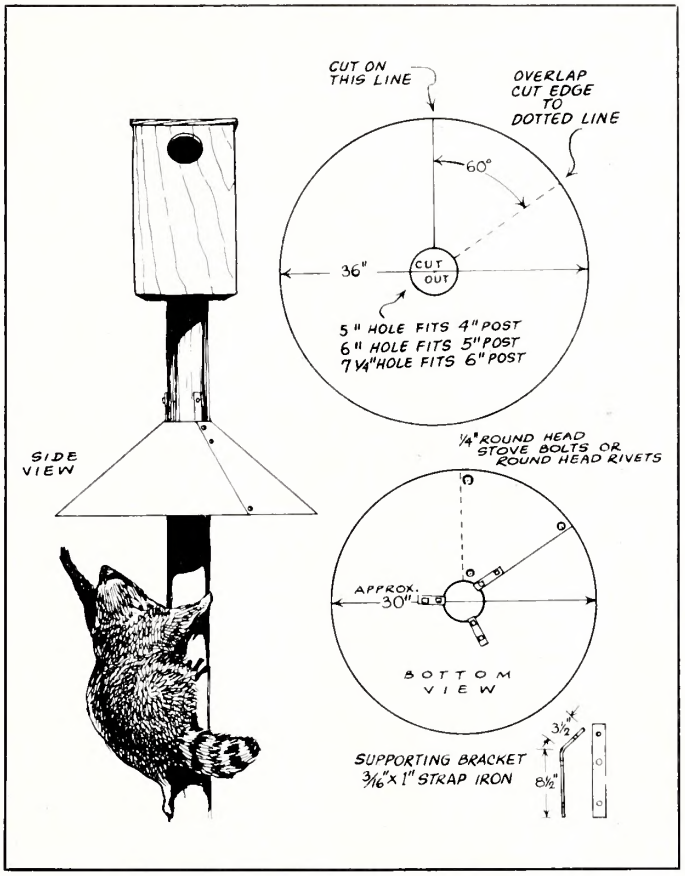
It is important that the boxes are mounted in a vertical position or leaning forward slightly. Boxes tilted backwards could prevent the exodus of the ducklings.

Since wood ducks begin nesting activities early, it is best to erect boxes by February 1. The earliest nest found at Hester's Pond contained a full clutch of eggs on March 8. In contrast, another female began egg laying on May 12 and called her family from the nest on June 25. Most nests are in use during April and May. But boxes can be erected any time it is convenient. If it is too late for current season's use, they will be ready and waiting next spring.

All existing boxes should be checked in late winter to see if they need repairs or replenishment of sawdust.

Outdoor Adventure

Putting up boxes is only part of the fun. The hens are not disturbed by occasional visits, and following nesting activities from beginning to end is a rewarding experience. The most exciting time comes when the female calls her day-old ducklings from the nest. They climb to the entrance hole and leap into the outside world, to stage an outdoor drama that will never be forgotten. Binoculars will provide a ringside seat.

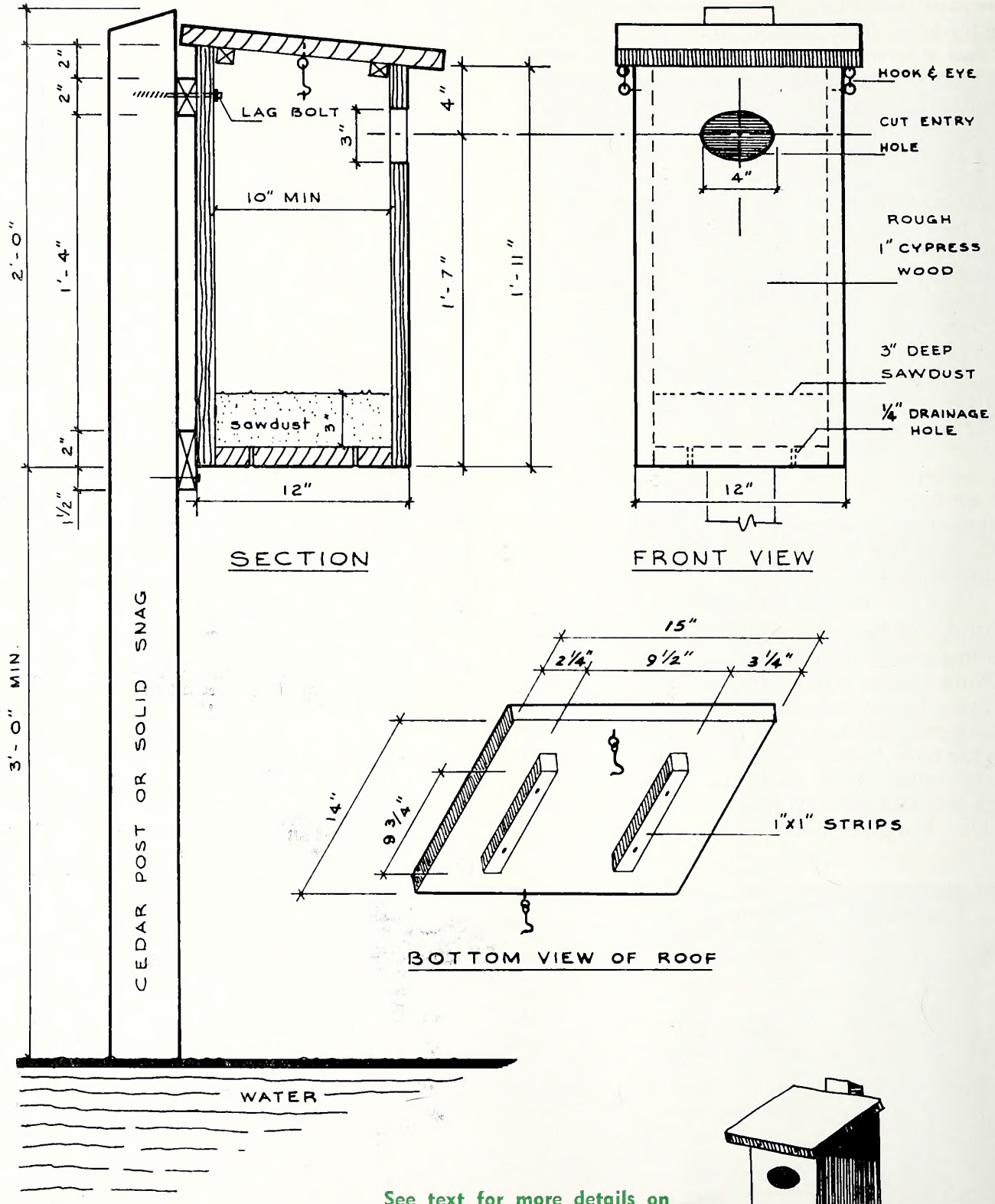


Fish and Wildlife Service

If houses are placed where raccoons or other predators are prevalent, they should be protected by this cone-shaped metal guard—even if the houses are on poles surrounded by water.

WOOD DUCK HOUSE PLAN FOLLOWS——→

The exodus of the family may be over in 2 or 3 minutes. When the hen is satisfied all have left nest, she leads the ducklings to the safety of vegetation along shore and begins the task of rearing them. They will be able to fly in about two months.



See text for more details on construction and erection.

WOOD DUCK HOUSE

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Trout Season Delayed

At its March meeting in Raleigh the Wildlife Resources Commission took action to delay the opening of the mountain trout season to April 30. The season had been set originally for April 2. Heavy snows and impassable mountain roads delayed pre-season trout stocking for more than a month. Stocking normally begins February 15, but by the middle of March roads were still blocked with snow and secondary roads were expected to be muddy after the spring thaw. The restricted season applies also to Forest Service lands.

Wildlife Commission Committee Appointments Made

Robert M. Carr, Wallace, Chairman of the Wildlife Resources Commission has made the following appointments of Commission members to serve on committees within the Commission: Budget—T. N. Massie, Chairman; G. E. Beal, J. A. Bridger. Legislative—R. F. Crouse, Chairman; G. E. Beal, J. A. Bridger, Thurman Briggs. Lands and Access Areas—G. E. Beal, Chairman; J. A. Bridger, Thurman Briggs. Waterfowl—O. L. Woodhouse, Chairman; G. E. Beal, Thurman Briggs. Controlled Shooting Preserves—J. A. Connelly, Chairman; Thurman Briggs, S. I. Stewart. Liaison—O. L. Woodhouse , Chairman; G. E. Beal, J. A. Bridger. Organized Hunts—J. A. Connelly, Chairman; Thurman Briggs, T. N. Massie. Predator Control—R. F. Crouse, Chairman; Thurman Briggs, S. I. Stewart. Trout—J. A. Connelly, Chairman; R. F. Crouse, T. N. Massie. Enforcement—Thurman Briggs, Chairman; J. A. Connelly, T. N. Massie. Game—S. I. Stewart, Chairman; J. A. Bridger, O. L. Woodhouse. Small Game—S. I. Stewart, Chairman; J. A. Connelly, O. L. Woodhouse. Personnel—Thurman Briggs, Chairman; G. E. Beal, T. N. Massie. Motorboat—J. A. Bridger, Chairman; T. N. Massie, O. L. Woodhouse.

Coast Guard Starts Boat Numbering April 1

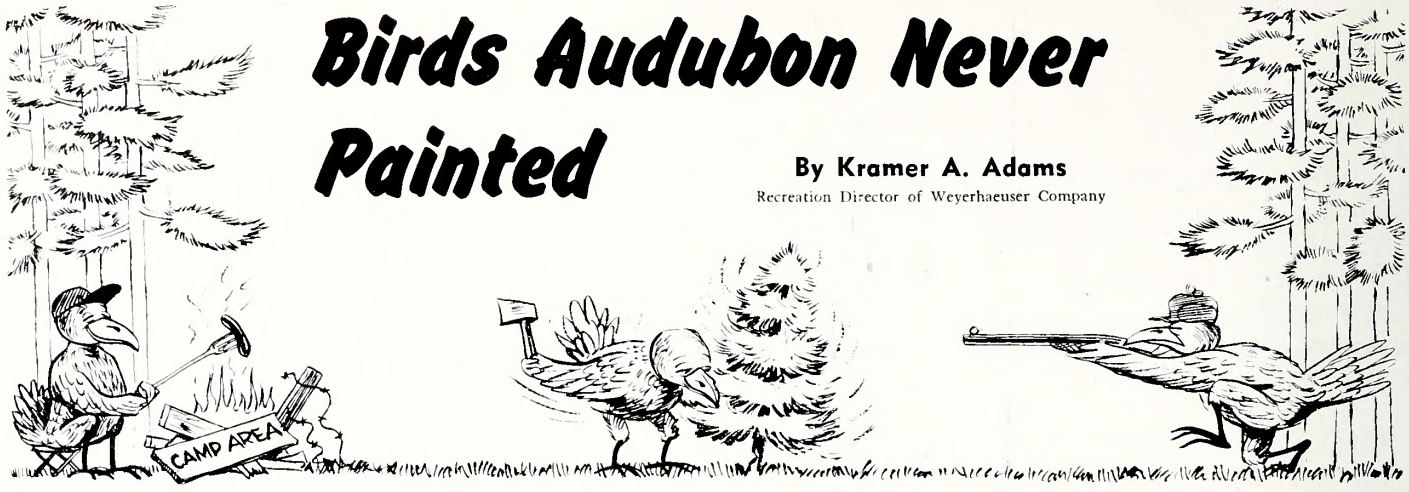
Beginning April 1 the U. S. Coast Guard will assign registration certificates and numbers to all boats powered by machinery of more than ten horsepower in states not having a state boat registration law. Since North Carolina has such a law, Tarheel boat owners are required to register their boats with the Wildlife Resources Commission.

Heavy Snows Hard on Tarheel Wildlife

Although field surveys are not complete, winter mortality on North Carolina's wildlife is not believed to be heavy. There was some mortality on small game in several localities, but it is thought that deer herds on wildlife management areas came through the heavy snows without serious damage. Refuge personnel cut rhododendron and other browse materials as an emergency measure to feed deer. In a resolution the Wildlife Commission expressed appreciation to groups and individuals who helped feed wildlife during the critical period. Spring and summer field surveys will assess the game situation to determine whether any further action will be needed.

Birds Audubon Never Painted

By Kramer A. Adams
Recreation Director of Weyerhaeuser Company



AUDUBON never painted them. Cooper couldn't find them. And Roger Tory Peterson never classified them.

So we enter the 1960's—what could be known as the decade of outdoor recreation—with a large gap in Man's knowledge of birdlife.

Don't blame Audubon, Cooper and Peterson. The kind of birds we're talking about are recent arrivals on the American scene. Serious outdoor birdwatchers are becoming alarmed about their increasing numbers.

The birds in question are all related to the lark family. These are the migratory woodland creatures that make increasing use of the forests, fields, lakes and streams while out on a lark.

Fortunately, most of these outdoor fun-loving birds are harmless. All of them are out to forget about tensions, traffic and taxes. But among them are birdbrained recreation-seekers who prove that they can discard the civilities of city life as fast as they can its worries.

These flighty visitors include many annoying birds; some comic, some foolish and some dangerous.

Birdwatchers of my acquaintance agree that the most common of the woodland pests is the *Migratory Litterbird*. Its range encompasses parks, campgrounds, highways and "wilderness" areas. Spoor of this species is evident throughout the year. It is being considered as the official bird of some states, with Kleenex to be the companion official flower. Foresters, rangers and highway naturalists are seldom able to identify the home nesting ground of the litterbird. But there is ample reason to believe that it must prefer to live in pig pens, barns or garbage dumps.

When fall comes to our fields, a plaintive "twang" humming through the brisk, clear air unmistakably identifies the presence of a *Large-footed Fence Hawk*. This bird is nearly immune to the dangers of barbed wire, but takes no chances. In a characteristic gesture, he firmly plants one foot on the lower strand of fence wire, pulls upward on the middle one, and scrunches through. The fence will never be the same, nor will the farmer's attitude toward hunters. The fence hawk's flight pattern is often traceable by a string of "No Hunting" signs.

One of the most serious troublemakers on Pacific Northwest tree farms is the *Free-wheeling Roadrunner*. It often makes a temporary nest in the mud of closed logging roads. The cry is readily identifiable. It goes something like "That blankety-blank lumber company—why didn't they tell me that this road was soft!" Meanwhile, he's used the timber company's road warning signs to put under his tires for traction.

One of the most easily-identified of our woods creatures is the *Red-eyed Swallower*. He usually has a deservedly short life, and is often ostracized by better-behaved birds. His cry, of course, is "Hic!" and his resting place on the ground is recognized by a collection of beer cans or whiskey bottles. It's those bottles, by the way, when catching the sun's rays, that sometimes start fires just as efficiently as a magnifying glass.

This brings us to the one bird that should be shot on sight. That's the *Addleheaded Snipe-flicker*. Fires are still the greatest threat to our forest and rangelands, and resultantly, to our outdoor opportunities. Paychecks and businesses are dependent on fire-free lands—to say nothing of scenery, wildlife and pure water. The cigarette snipe-flicker and his buddy, the bonfire buzzard, must be exterminated.

America's fastest growing bird pest is the *Roostertailed Water Thrasher*. Its range is on any body of water large enough to hold an outboard boat—and many that are not. This species of water-thrasher has an unpredictable flight course, although it is marked by roostertail spray, waves and violent reactions from lesser craft. The habits of this bird can sometimes be modified by use of a thumbs-down gesture, recommended by Outdoor Boating Club.

Have you heard about the *Sneaky-eyed Wood-*

pecker? He doesn't get away with much vegetation —just pecks away at it. He's the overenthusiastic home gardener, the illegal Christmas tree cutter, and the campfire kindling gatherer. His cry is "Chop-chop" on a rising note.

His brother, genealogically speaking, is the *Large-pocketed Camp Robber.* In making his nest, he'll steal anything. In recent years this bird has been known to fly off with power saws, picnic tables, gasoline, axes, railroad track and even Caterpillar tractors.

Running down the family tree, we come across the *Dim-witted Woods Ruff.* It has omnivorous habits, preying on gates, locks, roads, equipment, trees and power lines. It thrives on the bullet holes in signs and gasoline tanks. One of the more imaginative bands of this species was caught recently stabling horses overnight in an unused logging camp building.

Perhaps the most intolerable of all the fowl we have to put up with is the *Red-hatted Loon.* Fortunately, this rare species is seasonal, and does its damage only during a five- or six-week period in the fall. Biologists have determined that the loon has to have meat in order to survive. One of its more noticeable habits is that of shooting first and looking afterwards.

The most ridiculous, and fortunately, the rarest, of our woods birds is the *Largemouth Grouse.* After being a guest on a private tree farm; after being offered courteous treatment, free access, a free hunting map, and maybe even a free cup of coffee, this one sings "Oh, that lousy lumber company!" Regional variations of the song includes tirades about the poor hunting, fishing, berry-picking, rock-collecting or what-have-you. It sometimes leaves its mark on signs and gates.

This list of undesirable species is not complete. Nor does it include the many cross-breeds and mutations that will be afield in 1960.

The percentage of these non-game and predatory types mixed up with the millions of others is small. But coming pressures on our outdoor recreational resources will be so great that every specimen will become more evident and more dangerous.

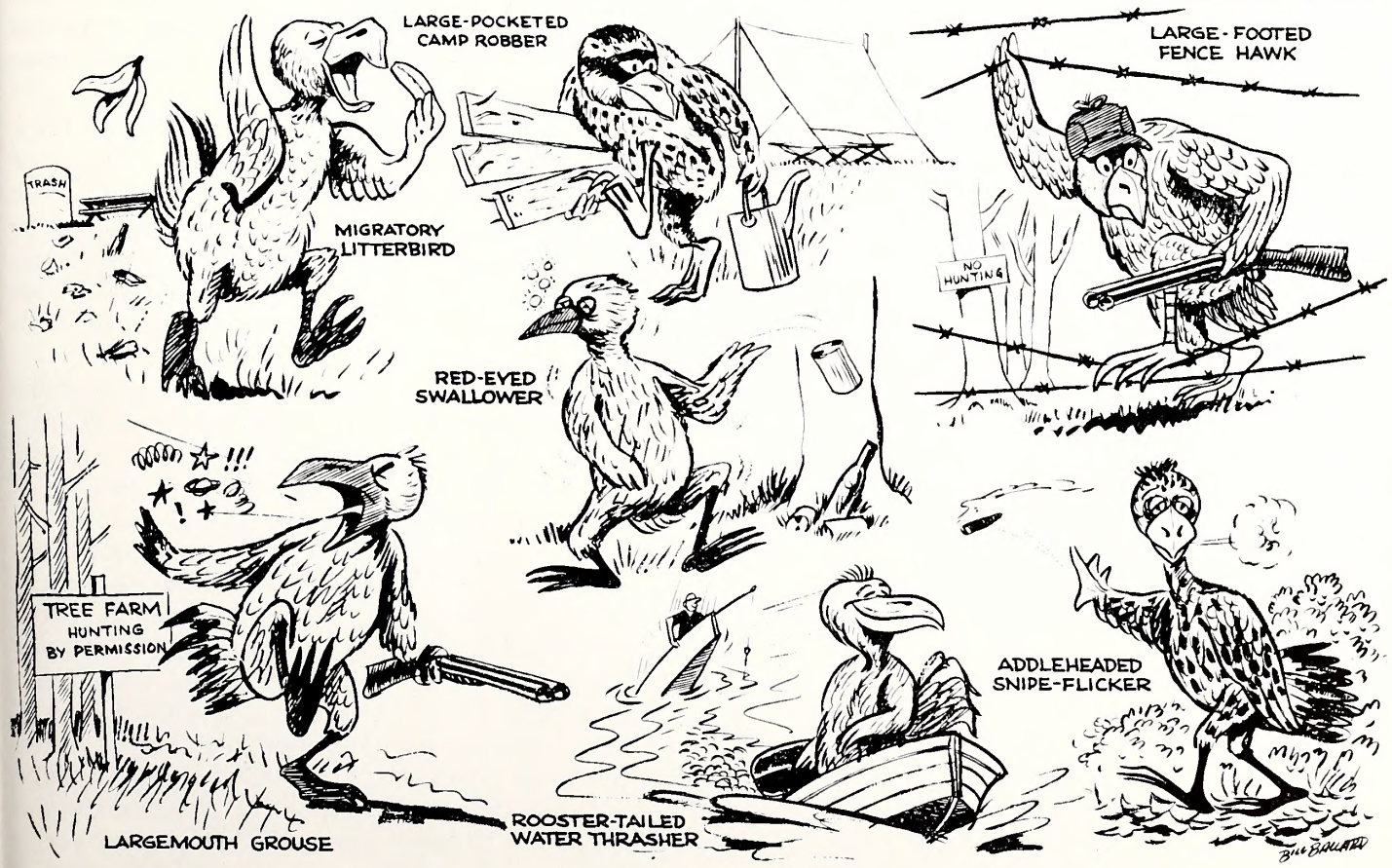
In 1960, there will be some 250 million recorded visits to our state and federal parks. National forests will handle 50 or 60 million visitors. Another two million will migrate to private tree farm lands across the country.

The hardy, predatory species are going to be as welcome as a seagull hovering over your picnic table.

The rest of us pay in one way or another for the depredations of others—whether on private or governmental land. They should be told that their irresponsible acts are strictly for the birds.

Let's jointly declare an open hunting season on these birds and adopt as our cry, "A better outdoor America."

Illustrations by Bill Ballard



Ten Top TARHEEL TROUT WATERS

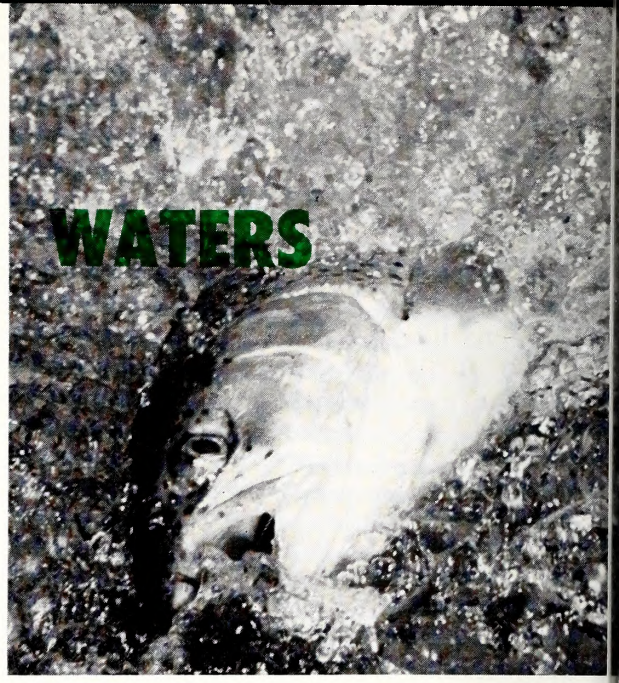


Photo by Jack Dermid

Are these the best trout waters in North Carolina? If not, they're very near the top of the fisherman's list. Even here though, fishing the cream of the trout waters, you may not always hit the piscatorial jackpot. That's what makes trout fishing. Let's go!

JUST what is good trout fishing? A stream where you can take ten 8-inchers in an afternoon of bait fishing? A deep reservoir where one 20-inch-plus trout is a week's work? A tiny feeder stream where the "big ones" rarely hit eight inches but are all native brook trout? Well, we all have our own idea as to just what really good trout fishing is. Here's what we think:

When they were asked to submit a list of the three or four best trout waters in their districts, fishery biologists Bud Ratledge, Frank Richardson and Jim Messer said, virtually in unison, "It can't be done." Narrowing the field of North Carolina's top-notch trout waters to twenty-five or even fifty would be difficult, and some real neck-stretching may be evident in selecting ten such waters. If your favorite trout haunt isn't here, you're probably not alone.

Frank Richardson, district fishery biologist from Elkin, spread his selection of three streams almost the full width of his district. He calls them "three good streams", and he still is undecided about whether they are the "best" ones.

Included is the "eastern-most trout water in North Carolina"—the Dan River in northwest Stokes County. Fourteen miles of the Dan are "Designated Mountain Trout Waters" and extend from Highway 704 bridge east of Francisco, north to the Virginia-North Carolina line. This designation means this portion of the river is open to the public and is stocked annually with trout. The best fishing is from the State line down to Union Mill Dam. It's big, fast, white water, with deep pools—typical rainbow water. It may be high during April but usually settles down in early summer. You may find a light spinning outfit better suited to stream conditions than the flyrod, but either will take trout. Expect both rainbow and brook trout.

In upper Wilkes County is Doughton Park, through which flows Basin Creek—which actually is the upper portion of the Middle Fork of Roaring River. In spite of this complicated-sounding arrangement, Basin Creek is quite easily located and is first-class trout water. For many years abundant natural reproduction of brook and rainbow trout made stocking unnecessary. The combination of habitat factors which made this spawning possible also made good fishing conditions. The water is almost without exception crystal clear, and of fairly steady flow. The headwaters contain virtually 100 percent native brook trout while the lower stretches are prime fly fishing—rainbow areas. This lower section is now stocked with rainbows.

Three Top Creek is a tributary of the North Fork of New River in Ashe County. Its entire length of ten miles is trout water and the fishing starts near Highway 88 at Creston, N. C. This stream can be fly-fished but the lower reaches spell spin-fishing. Native trout—brown, brook and rainbows—are caught in Three Top although it's stocked with brook trout.

Moving south along the Blue Ridge and picking up the selections of H. M. "Bud" Ratledge, fishery biologist in Marion, we find the Linville River heading the list. The Linville's origin is in Grandfather Mountain, Avery County and is open to the public for sixteen miles from Crossnore to the Burke County line. Crossing into Burke County, it is publicly accessible for two miles above and two miles below Linville Falls. Below the falls, the river runs for seven miles through Daniel Boone Wildlife Management Areas. In this section a daily permit costing one dollar is required and fishing is permitted only on Wednesdays, Saturdays, and Sundays throughout the trout season. The river below the falls threads its way through a wilderness gorge

and simply getting there is a challenge to endurance. The fast, cold, turbulent water holds the promise of big brown trout and this pulls the ardent angler back again and again. Fishing the gorge is not for the timid, but for a wilderness trip you will remember, it's without equal. Overnight camping is permitted in the gorge on Friday nights and Saturdays but a Forest Service permit is required. Best catches have been reported in June, July and August.

Sliding down the north slope of Mt. Mitchell in Yancey County is Cane River. The water is wide and is first-rate brown and rainbow habitat. Cane River is designated trout water and open to the public below Pensacola (Murchison Bridge) for ten miles. This fine fly fishing water yield browns of four to six pounds every season. The stream is readily accessible and is ten to thirty minutes drive from Burnsville.

The Rocky Broad River in Rutherford County is well named. Although the section under management is short (about three miles paralleling Highway 74 between Lake Lure and Bat Cave) there's a lot of fine fishing available. Rainbows are the main target. Rocky Broad feeds Lake Lure and many of the stream rainbows have drifted into the deep lake. Locally called "steelheads", they furnish some good fishing. Check with the experts around the lake concerning local lake regulations and conditions.

Wildlife Commission District 9 covers all the counties southwest of and including Madison, Buncombe, Henderson, and Polk; this is a lot of trout country. Jim Messer, fishery biologist of Franklin came up with these four waters as some of the best in his area.

Cheoah Reservoir in Graham and Swain counties extends from the foot of Fontana Dam, almost to the village of Tapoco. It is designated trout water which means that a special trout license is required in addition to a valid fishing license; since it is an "impounded power reservoir" there is no closed season on trout. This is a tricky place to catch trout, but your reward may be a rainbow over two feet long. The best spots to try for these rainbows are in the swift water several hundred yards below the Fontana Dam, and near the incoming streams. Some medium-sized brook trout are also taken. Biologists hope for bigger brookies soon as a result of the present stocking. Access is somewhat limited and it would be best to inquire locally (at Fontana Village) on how to get a boat—which is just about a necessity—into Cheoah. Some of the best fishing is from early September through December and then in March and April. In order to cover this much water, spinning tackle is best. Small spoons and spinners work best, but some nice trout are taken on worms and even bread!

Just about the height of beauty in a place to fish is Nantahala Reservoir in Macon and Clay counties. And it is a big double-decker fish sandwich to boot! The upper layer is ideal smallmouth water and holds some pretty fancy largemouth and bluegills too. But down deep in the 50° water are the trout. Mostly heavy-bodied rainbows—some bigger than you ever expected to see—and a few thick-shouldered browns up to ten pounds. Again, they're not easy to catch and some anglers are going to wonder why this water rates among the top ten. Much of the best fishing is definitely of the "long-handled" underwear variety, from mid-October through April. Look for incoming streams and cast a spoon or spinner toward the creek mouth and retrieve slowly, letting the lure travel deep. The Nan-

Photo by Jim Lee

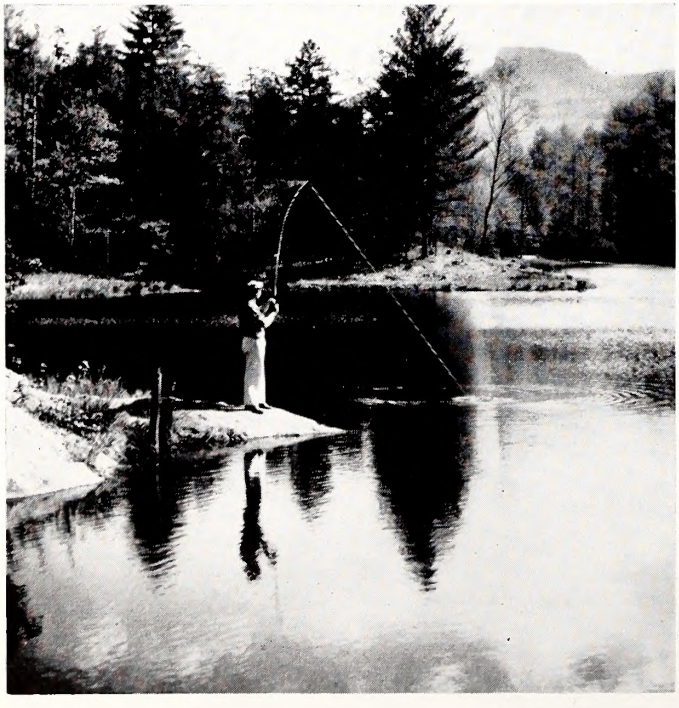
tahala River mouth is a favorite with local fishermen. To get to the reservoir take the Wayah Road from U.S. 64 west of Franklin, or the access area road from U.S. 19 just east of Andrews. It's best to take your own boat and motor.

No list of trout waters would be complete without the Nantahala River. This sprawling, tumbling giant actually springs up less than a mile north of the Georgia line in Macon County and winds it way into Nantahala Reservoir and surges from the reservoir to go cascading into Nantahala Gorge paralleling U.S. 19 west of Bryson City. It is in this ten-mile section from the upper gorge to the water level of Fontana Reservoir where the mighty stream empties that the big trout are caught. Water levels are all-important to fishing success. High water means practically no fishing because of the speed and volume of the water. Catch it "right" in May or June and you are in for some supreme fly fishing. Rainbows are the mainstay and they are big.

Big water usually means big trout, and the Davidson River in Transylvania County is no exception. The recommended section is in the Pisgah Wildlife Management Area and is subject to special regulations and specific open fishing days. Variety is the keynote of the Davidson: bubbling riffles broken by deep, dark pools. Brook and rainbow trout with an occasional brown are caught, and late May through June the best time for good fishing.

Still waiting for your favorite stream to be mentioned? We're sorry if we missed it, but this certainly doesn't hit all the hot spots for trout by any means. But it's a start if you're looking for trout fishing for the first time. Be sure you have your special trout fishing license, know the fishing regulations and check local conditions. Let us know how you do; maybe we'll see you there.

Photo by Jim Lee



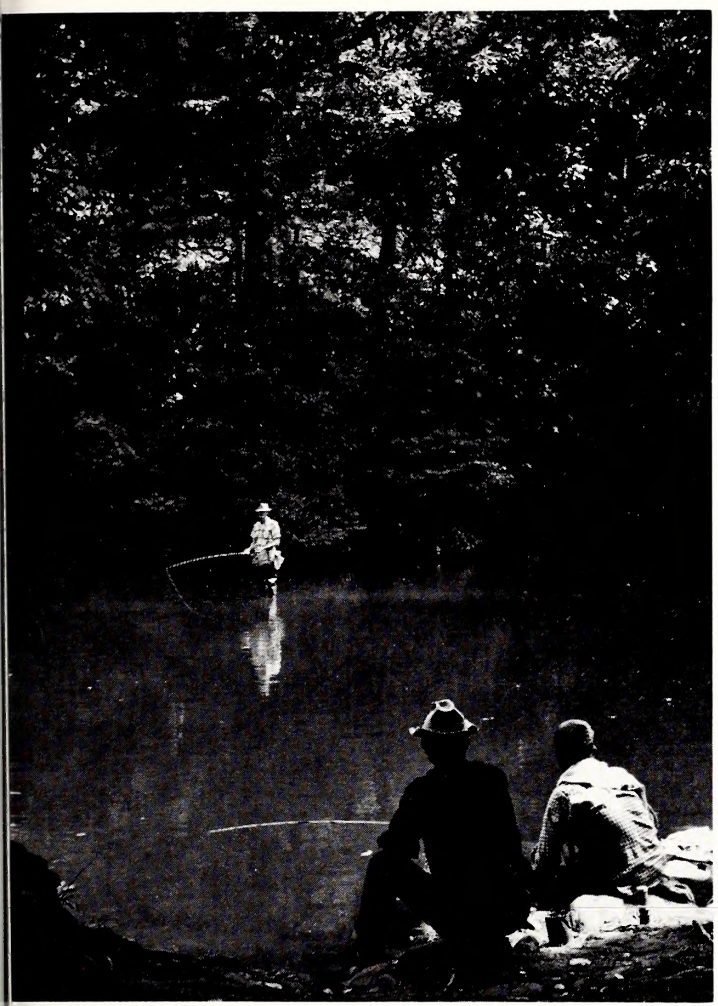
Why Not Fish SMALL TROUT LAKES?

By Frank Richardson
Fishery Biologist
Photos by Jack Dermid

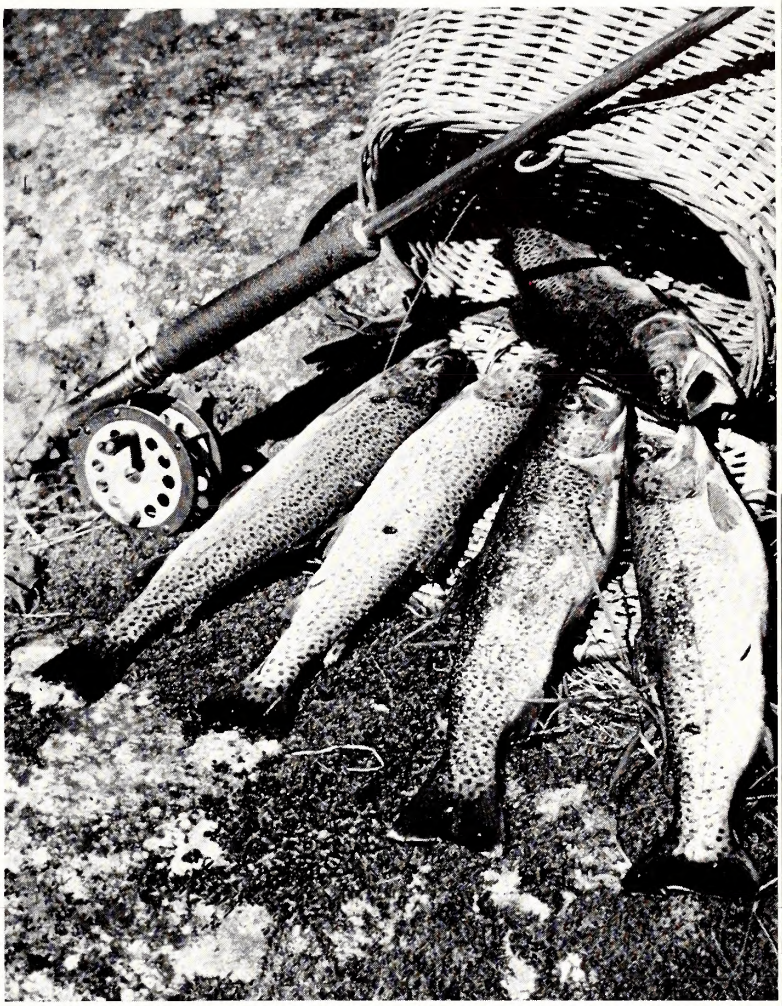
Tired of stumbling over slick rocks? Then, wet your line in a Tarheel trout lake—where big fish lurk!

IN the last few years Tarheel sportsmen have seen their trout fishery change considerably. Trout ponds aren't new, but the upswing in their popularity in recent years has been tremendous. Since spin fishing has become popular in this country, any one can become adept at casting in one afternoon of practice. Where the fly rod was disillusioning to many beginners, the spinning rod is easily understood and has made new fishermen overnight.

These new fishermen created the demand for trout lakes under a managed stocking program. So popular has the trout lake program become in North Carolina that in five years it has blossomed from three lakes to a total of 15 lakes now within the Wildlife Resources Commission's trout management program. Five years ago less than 500 people were checked fishing the three existing lakes on opening day. In 1959 at Sparta Mill Pond alone over 2,000 fishermen were checked on opening weekend. These fishermen came from Roanoke, Va., Raleigh, Durham, Greensboro, Charlotte, Winston-Salem—just to mention a few of the population centers represented. Other reports of fishing pressure on our small trout ponds indicated that the



Fishing in trout lakes can be a working proposition if you want to don waders—but if you want to sit on the bank with a cane pole enjoying a summer day, you may still catch a limit.



Payoff can be a creel full of sparkling beauties. Small lakes are stocked with adult brooks and rainbows since native reproduction can't keep up with demands of heavy fishing pressure.

same things were happening on other waters.

At Tater Hill Lake in Watauga County on the night before opening day, several dozen tents were erected and camp fires dotted the lakeside. These fishermen were making sure that they would be ready at 7 a.m. opening day.

At Trout Lake on the Cone Estate near Blowing Rock, at 6:30 a.m. two men in business suits hurriedly put on oversized coveralls in a parking lot near the lake. They had driven up from Lenoir less than thirty miles away. They could fish an hour or so and still get to their offices by 9 a.m.—and, with a little luck, might fill their creel limits.

Similar experiences occurred over and over at such places as Mirror Lake in Macon County, Little Lake Glenville in Jackson County and Sloop Dam in Avery County.

Spinning rods were most commonly seen but most every type of equipment was used—casting rods, fly rods, cane poles and even alder branches. Garden hackle (red worms), crickets, minnows, spring lizards or salamanders, spinning lures, streamers, and bucktails all were used.

The 1960 season will find even more sportsmen fishing these small trout lakes. Trout distribution in 1960 will greatly exceed any previous stocking. State hatchery men have outdone themselves and with the generous help of the U. S. Fish and Wildlife Service, this will be a banner year for North Carolina trout fishing.

Both rainbow and brook trout are stocked in these lakes and in some waters the two species are stocked together. Since natural reproduction in most lakes and ponds can be considered nil, stocking is done primarily with adult fish. Fishing pressure is so heavy that small fish have a poor chance of growing up, so only limited fingerling stocking is done. This is the reverse of management practices used on large trout lakes where several hundred acres may be involved.

This 1960 season will see around 50,000 people trout fishing in North Carolina. Five thousand of these people will be trying trout fishing for the first time. If you are one of the beginners, we especially invite you to try one of our trout lakes during the season. Here you can rub elbows with your fellow man whether he be a bank president or a grammar school student. Few things put you on such equal footing with other men as having a fishing rod in your hand.

THE SKIPPER

Conducted by Duane Raver

USUALLY whenever you have to fork over some cash, you expect something in return. So it is with the three dollars you paid for your boat certificate of number. What will you get out of it? First, we hope and believe that you will get safer boating—a new protection from reckless and negligent boat operation; the enforced protection stemming from safety equipment requirements; information on how to stay alive on the water. Second you will have an identified boat with your own individual number. And third, you will have an organization—the Wildlife Resources Commission—standing ready to help you with your boating problems. We will do our best to see that you get your money's worth.

Where's The Money Going?

The uses of the funds derived from boat registration are specifically spelled out in the Boating Safety Act. This money is to be spent only for administration and enforcement of the Act and for boating safety education—and for no other purposes. Also, no funds collected from the sale of hunting and fishing licenses can be diverted to boating safety activities. For example, your three dollars collected for the registration of your boat cannot be spent to help buy a fish hatchery truck or raise multiflora rose plants. Instead, it has been and is being spent for tabulating and sorting machines for handling the thousands of certificates of number, for information booklets, for the very pages in this magazine which you are reading, increased office staff to handle the recording of boat numbers and information, some new equipment for wildlife protectors especially heavily burdened with boat traffic, and dozens of other things necessary to effectively carry out the Motorboat Safety Act.

How Much Will There Be?

What sort of income can be expected from boat registration? The answer is simple: take the number of boats to be registered and multiply by three dollars. "Simple?" How many boats powered by motors of over 10 horsepower do we have in North Carolina? The estimates range from 45,000 to 100,000 and these figures are practically out of thin air. So the annual income that can be budgeted toward the operation of the Motorboat Section of the Wildlife Commission plus proportional parts of the Protection and Education Divisions is still an unknown quantity. Expenditures must be developed slowly the first year. Expansion of enforcement, education and services is still in the future.

RULES OF THE ROAD

Boating, if done safely, is enjoyed under a set of rules known as "Rules of the Road". Published as booklet number CG-169 by the U.S. Coast Guard, these rules are not State law but are enforced by the Coast Guard. Often the failure to obey any one of these rules may be construed as reckless and negligent operation so as to endanger life or property, and under these circumstances is punishable under the State Motorboat Safety Act. This and other pamphlets are available upon request from Coast Guard marine inspection offices in the major coastal points, or the Commandant (CHS), United States Coast Guard Headquarters, Washington 5, D. C.

QUESTION BOX

Question: I understand that under the Boating Safety Act a fire extinguisher is required if the boat is of "closed construction". Just what is "closed construction"?

Answer: The Federal regulations pertaining to safety equipment which were adopted by the Wildlife Resources Commission state in part that "Outboard motorboats less than 26 feet in length of open construction, not carrying passengers for hire, are not required to carry fire extinguishers." The term "open construction" refers to boats so constructed as to have the greater portion of the bilges under the engines and fuel tanks open and exposed to natural atmosphere at all times. If there are bilges or other compartments which can collect fuel and explosive fumes, this would constitute "closed construction".

Question: Will the boatman be able to recognize a patrol craft of the Wildlife Commission?

Answer: Boats used by Wildlife Commission officers in enforcing the Boating Safety Act will be identified by a blue, white, and red flag approximately 12 inches square with a diamond-shaped design with the name "Wildlife" written across it. Also the words "Patrol Craft" will appear on the flag. All Wildlife Protectors will be in uniform.

Question: Is there any minimum age requirement for a boat operator under the Boating Safety Act?

Answer: No; no such provisions are provided in State law.

Question: Do I have to have lights on my boat if I don't use the boat at night?

Answer: The Boating Safety Act, Section 6 (a) states, in part, "Every motorboat (by definition this is a vessel powered by machinery of more than 10 horsepower) in all weather *from sunset to sunrise* shall carry and exhibit the following lights. . ." The answer then is, no, only when the boat is used at night.

LIFE SAVING DEVICE REQUIREMENTS

Motorboats in classes A, 1 and 2, not engaged in commercial fishing or carrying passengers for hire shall have one buoyant cushion, or buoyant vest, or life preserver (jacket) or ring life buoy for each person aboard. Motorboats of classes A, 1 and 2 engaged in commercial fishing shall have a wood float, or buoyant cushion, or buoyant vest, or life preserver, or ring life buoy for each person aboard. Class 3 motorboats under 65 feet in length in "general" use, shall carry a life preserver or ring life buoy for each person on board. Class 3 boats under 65 feet engaged in commercial fishing may substitute a wood float for either a life preserver or ring life buoy. Class 3 boats over 65 feet in length, regardless of usage (commercial fishing, etc.) shall carry one life preserver (only type acceptable) for each person on board. Any class of motor boat carrying passengers for hire shall have one life preserver (only type acceptable) for each person aboard, plus an additional 10 percent suitable for use by children. All these life saving devices must be Coast Guard approved to meet minimum requirements.

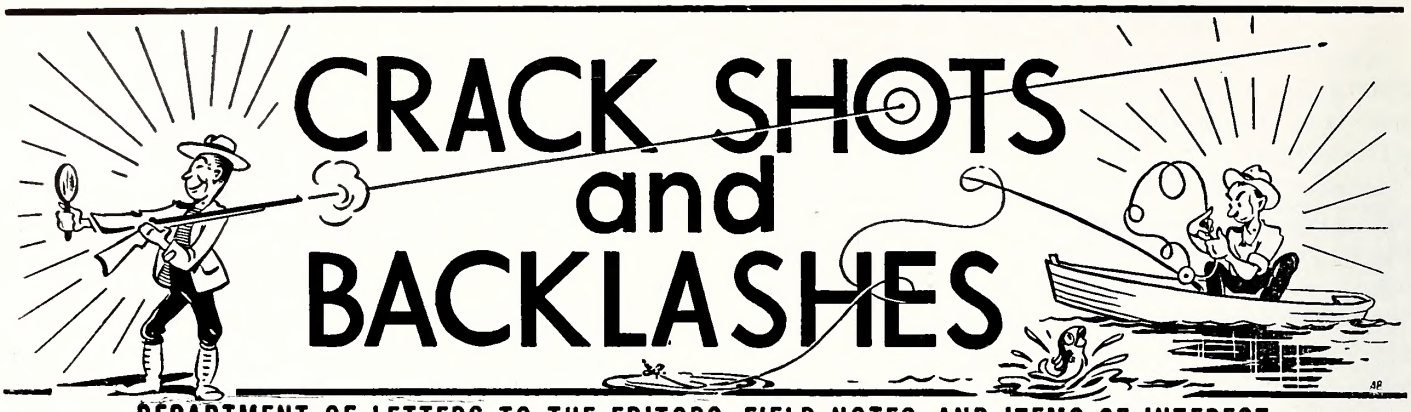
WATER SKIING

The water skier often gets the blame for the major part of boating accidents, scaring the daylights out of swimmers, and disrupting the peace and quiet in general. Some of the blame is no doubt justified—some isn't. To condemn water skiing generally as a reckless game is just about as senseless as saying that all use of firearms is bad. One glance at the rules and regulations of the American Water Ski Association should create at least a little more favorable reflection on the sport as a whole. To stop a sport simply because it may be annoying at times is obviously unjust and certainly without one shred of legal backing. If the water skier or boat operator is disobeying the law, then punishment will be forthcoming.

Contrast this properly-equipped skier with the "hot rudders" on Page 18. He's much less likely to hurt himself or others.

TROUBLE AHEAD FOR YOU?

Let's hope not. But you as the skipper can be even that much surer of an accident-free boating season ahead if you'll simply stop and think and use common sense in tight spots. The statisticians tell us that less than one-half of one percent of all boatmen get into serious trouble afloat. But this could be you. Foolishness has no business on board your boat—whether by you, the operator, or by one of your passengers. Fun, yes, but don't let it get out of hand. Taking needless risks, maybe just to "show what your boat will do", is kid stuff. Watch out for simple errors in judgement such as standing up in a boat, a slippery deck, over-loading, rough water. In water accidents, experience isn't the best teacher.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

With April showers freshening the air and buds bursting forth, wild flowers blooming and birds singing, spring is finally here. Although the past winter was not too rough in North Carolina, most of us remember the February snow and ice storm. Mrs. Ruth Stanley of Thurmond will long remember it. In a charming anecdote she admonishes: Cast your bread upon the waters or on bird feeders!

"During the February 1960 record snowstorm I was at my cabin in the mountains of North Carolina. This snow caught us unprepared and groceries low.

"I had got down to my last thirty-five cents in cash, but was to market a load of corn the next day; arose to find it impossible to get out. I had flour and meal, but only two slices of light bread. I had them on my old heater drying to make it into crumbs for those little birds outside my window. A neighbor came trudging in through the snow and asked what I was doing.

" 'You are doing without your toast on a morning like this! he remarked, 'to feed the birds, and knowing you can't get out with your corn to market for a week or more, and you are broke!'

"About that time came the mail man with a check for thirty dollars for rocks (gem materials) which I collect as a hobby and sell to help with expenses (you see, I am a widow studying geology).

"It pays to feed the birds, don't you think?"

We most certainly do!—Ed.

Note From Lucretia

It has been a long time since we heard from our old friend Lucretia Plymph of Wake Forest. Her last letter, postmarked Anchorage, Alaska, says in part: "It has been so foggy here for the past two months that I have trouble finding my bearings. Is north the same direction up here as it is back home? Yours very truly, LUCRETIA P."

You not only need to find your bearings—some of your marbles are missing. Moss grows on the north side of trees. Send us a tree and we will tell you which is the north side of it.—Ed.

Nutria A Nuisance

DEAR SIRS: I wish you would write an article on nutria, and how to get rid of them or find a market. Several years ago, a misguided sportsman brought the first of them to Hatteras Island, thinking there was a market. Since then, they have multiplied so fast that no garden is safe near the freshwater swamps and they have undermined the banks with their enormous appetites for all roots. There is a market for muskrat but none for nutria. We have wondered if a bounty could be paid, or if there is any use for them. I noticed an ad in the last issue of Popular Mechanics for growers and distributors in California and they claimed that nutria garments were nationally advertised. We would like to have some advice on this thorny question. HATTERAS ISLAND READER

Nutria bed in a Hatteras marsh

The nutria, like the English sparrow and the starling, is another foreign import that has become a nuisance. In South America, its native habitat, the nutria is a valuable fur bearer. In this country the nutria was stocked in many areas. Although the animal thrives and is prolific, the fur is of only fair quality and pelts are hard to process. There is little local use for either the pelts or the carcasses. North Carolina does not pay a bounty on any wild species.

Many years ago American muskrats were imported to Holland, with the idea that the animals would thrive in the lowlands and yield a valuable fur harvest. The muskrats thrived, but as with the nutria here, their pelts were worthless and their burrows endangered dikes and canals.

It's Not How Many You Catch

DEAR SIRS: I have long been an ardent bass fisherman in Currituck Sound, and have had wonderful luck there each year. This luck consisting of being able to go at the right time, having the best of accommodations, and I consider the best guide on the Sound, and most of all being able to enjoy this wonderful sport.

My catch has been from the smallest of the largemouth to the largest; as far as we can tell 9½ pounds, for which I and my guide are very proud.

But—(now here it comes) any and every sport has rules and regulations, some written—some not; one that is practiced on the Sound and to which I am referring is the one where the guide can tell you what size fish to keep and what size to throw back.

I know after paying this guide as much as we have to now days, and knowing the State rules on the size and number of fish we catch and keep. I know of no rule that states that a fisherman has to keep all fish he catches. If I am paying $20 a day to fish (or for my guide, etc.) and the first eight bass I catch just reach the minimum limits I don't consider this a fair catch.

My question is can I throw any fish back that I do not wish to keep in possession, and am I right in saying the law states that the limit is eight in possession and not eight caught?

Should the guide make me keep the first eight and then bring me back to the landing as soon as they are caught? Is it not my privilege to release any fish I do not want?

I would appreciate your letting me know about this as soon as possible as I will be going down in April. JACK H. TERRELL, BURLINGTON

The regulation allows you to keep eight legal-size bass in possession, but does not restrict the number you may catch and release. If you hook a bass that is just legal size, it is your privilege to keep it or return it to the water. Legally you catch bass all day long or as long as they bite, just so you don't keep more than the legal limit.

By getting you to keep the first eight legal-size bass you catch, the guide saves his own time with an eye to taking out another party and collecting another fee.

Catfish Fishin'

DEAR SIRS: The moon shone brightly over the surface of the river as I trudged back home. I had just finished setting my catfish hooks. I used spoiled chicken dipped in coagulated chicken blood for bait.

The old catfish anticipated good hunting as he moved slowly out from under the log that had been his lair during the day. As he moved out into the current of the river, he caught the scent of chicken blood! He hurriedly moved upstream to investigate it. He rounded a bend in the river and saw the piece of chicken laying there on the bottom of the river. He moved slowly towards it. Finally, deciding nothing was wrong with it, he gulped it down. At first, he thoroughly enjoyed it. Then he felt the sharp sting of the hook and saw a string leading from his mouth! He turned to run, but the line drew tight when he reached the end and jerked his head around cruelly. He fought with every last ounce of strength he had but that was not enough. Finally, the life ebbed out of him and his body floated belly up on the river.

The big owl stretched his wings and flapped them as he prepared himself for the night's hunt. The moon was out and the night was warm. The owl spread his wings and soared silently through the forest. He reaches the river and decided to try his luck there. As he glided noiselessly down the river, he saw a white form close to the top of the water. He steepened his dive and headed straight for it. The object was directly under him and he struck with his talons. Suddenly something struck his left wing, jerking him around. Then this unseen enemy engulfed him, snaking around his head, around his feet, and over his wings. He became terrified and struggled in vain to escape. But it was no use. Finally he fell back in the water and drowned.

As I walked along the path to the river, I was wondering how many catfish I would have. "I hope I have eight" I said to myself. The first hook was empty, and so was the second, but I could hardly believe my eyes when I pulled the third hook from the water! There was a catfish and a dead owl on the line together! I have told many people this story and no one has believed me yet! GUY W. PRICHARD, SILER CITY

This doesn't sound too fishy for us. We do, however, doubt that the catfish saw either the bait or the line. Catfish feed mostly at night and by scent rather than sight. Wonder how catfish-owl chowder would taste?—Ed.

Resource-O-Gram Correction

TROUT SEASON OPENS APRIL 2

After the Resource-O-Gram (page 11) went to press, the Wildlife Resources Commission changed the opening date of the trout season from April 30 back to April 2 as originally scheduled. Although almost no stocking will be done before the April 2 opening date an opportunity will be afforded to determine the ability of mountain trout waters to supply the demands of anglers with native fish. Most of the trout taken in the early part of the season will be native fish.

IMPORTANT NOTICE

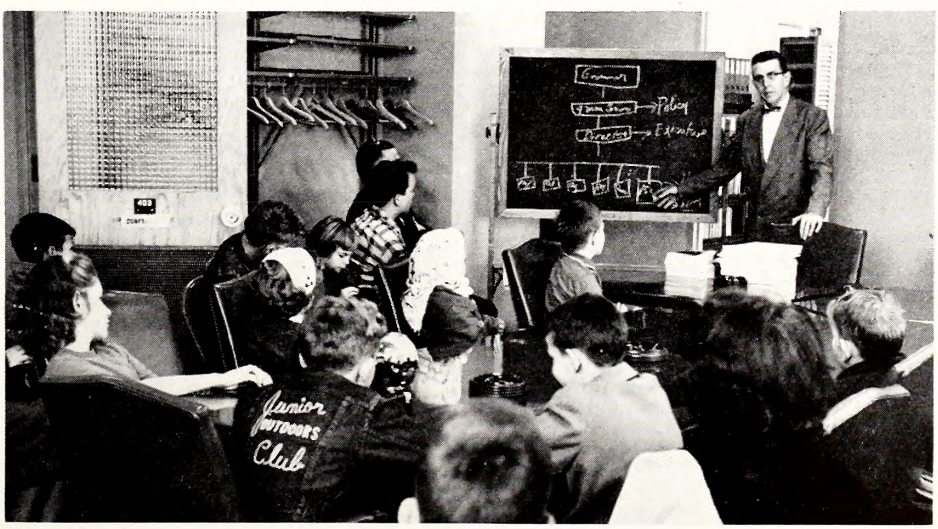
Management Area Trout Rules

At a meeting in Asheville the U. S. Forest Service and the Wildlife Resources Commission established regulations for the 1960 trout season on cooperative wildlife management areas of Western N. C. Open fishing dates will fall on Wednesdays, Saturdays and Sundays. May 30 and July 4 will be additional fishing dates.

For many years Neals Creek on the Mt. Mitchell area has been a popular fishing area for the sole use of women and children under twelve. An additional stream has been set aside for the same use in 1960. It is the right prong of West Fork, Pigeon River, on the Sherwood Management Area.

A major change in the regulations pertains to Lost Cove Creek in the Daniel Boone Area and Lower South Mills River in the Pisgah Area. There has been a great public demand for streams

Members of the Junior Outdoors Club of Greensboro visited the Wildlife Resources Commission offices in Raleigh recently. Shown here is Director Clyde P. Patton explaining the organization of the Commission to the group of junior wildlifers.



PROTECTOR OF THE MONTH

E. Richard Jarrett

Mr. E. Richard Jarrett was born in Alamance County on June 8, 1932, graduated from Haw River High School in June, 1950, and later attended Burlington Business College. He has also served with the U. S. Navy for four years in Europe.

In 1955, Mr. Jarrett attended the Wildlife Protectors' Pre-Service Training School in Chapel Hill, and served as Wildlife Protector in eastern North Carolina from August, 1957 to May, 1959, when he was transferred to Alamance County. He has also attended the 1958 and 1959 sessions of the Wildlife Protectors' In-Service Training School.

Mr. Jarrett is very active in wildlife and sporting clubs, farm clubs, and civic organizations. He is married to the former Judith Faye Taylor of Burlington, and they have two children. The Jarretts are members of the Baptist church in Haw River, where they reside.

IT'S THE LAW!

QUESTION: How many black bass can I have in my possession when the fish are taken from public water?

ANSWER: The 1960 Fishing Rules allow a daily creel limit of 8 black bass and a possession limit of three days' creel limit, or 24 black bass.

ENFORCEMENT RECORD FOR JANUARY

Persons checked	28,250
Total prosecutions	450
Total convictions	428
Total cases not guilty	10
Total cases nol prossed	8
Total cases dismissed	4
Total fines collected	$3,312.00
Total costs collected	$3,284.10

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

with a self-sustaining trout population, and these streams will be managed as "Native Trout Streams." Special regulations affecting them will include a minimum size limit of nine inches, and a daily creel limit of five fish. All fishing on the two streams will be restricted to the use of artificial flies. If any stocking is done in these streams, only fingerlings will be used. The special regulations will apply to the entire watershed of Lost Cove Creek. On the South Mills River the special area will extend about seven miles —from Turkey Pen Crossing upward to Wolf's Ford. As on all other streams in the management areas, special permits will be required on these streams.

The concept of "native" trout streams was developed at a meeting of interested members of the N. C. Wildlife Federation at Morganton last winter. The public demand for fly-fishing-only streams with populations restricted to native fish has resulted in these regulations, as an experiment, for the 1960 season.

Complete regulations for fishing in the western management areas are available from the U. S. Forest Service, Box 731, Asheville, at District Ranger offices, and the Wildlife Resources Commission, Raleigh.

After a long and snowy winter you can look for fishermen lining the banks. Reader Raeford Stephenson of Raleigh was snapped lazily angling below Fort Fisher.

Pleased With Pollution Veto

DEAR SIRS: I was pleased to learn from the newspaper this morning that the President vetoed the bill to greatly increase "Federal" expenditures in reference to water pollution control. He made the obvious point that local communities should take care of local problems.

I wonder just where you advocates of Federal Government spending think the money is coming from. Irresponsible spending over the last twenty years (and particularly during the last ten) has put the country enormously in debt. The situation is so critical that if you are observant, you are aware of the expressed opinion of many responsible persons, that a flight from the dollar becomes more and more likely. It can only be prevented by an about face and relinquishment of the idea that all problems can be solved by our bankrupt government borrowing (or printing) more money.

The enclosed Warner & Swasey advertisement contains some good advice for Americans.

Now that I have this off my chest, let me say I enjoy my annual trips to North Carolina Outer Banks and enjoy reading your publication. GERALD ISPHORDING, C.L.U., CINCINNATI, OHIO.

"WHEN SMALL MEN BEGIN TO CAST LONG SHADOWS IT IS A SURE SIGN THAT THE SUN IS SETTING."

And too many very small men are casting deeply black shadows across America today.

Small-minded business men, more interested in making an easy dollar by manipulation than a harder dollar by producing values.

Petty politicians who act as though they rule the people rather than serve them.

Orton Plantation near Wilmington had rare guests in January and February, three fulvous tree ducks, long-necked, goose-like residents of the Southwest, Mexico, India, East Africa, and South America.

Photo by Jim Hardie

"This looks like a good spot to fish."

Selfish labor leaders more interested in power than in America, even though their greed brings high costs, destructive inflation, deadly depression.

"Greedy people in many walks of life, who want **their areas, their special interests** supported by all taxpayers, when they ought to be paying their own bills."

Long shadows like these will continue to grow until the entire country is in eclipse, unless the **real** people, who do the work and pay the taxes, wake up to their responsibility and opportunity. By voice and vote, they can take their country back again, and insist on honest values once more, greater public integrity, and hard work so that everyone will earn what he gets. And we had better **do** it, before that sun sets. (Warner & Swasey, Cleveland)

This correspondent wants to put us on the defensive. *Wildlife* has heartily endorsed the Federal Pollution Control Program and will continue to do so. What do you, our readers, think about this subject?

Hunger Proves Weasel's Undoing

Hunger recently proved the undoing of a weasel in New Hampshire, the National Wildlife Federation is advised. Milo Lindgren of Concord was driving along a highway when he saw a rabbit in the clutches of a weasel. He stopped and went back to the rabbit, whereupon the weasel retreated. Each time Lindgren drew back, however, the weasel would attempt to return to the struggling victim. Finally, Lindgren stood quietly near the rabbit, with foot raised. The weasel returned again, sniffed the boot and grabbed at the rabbit, whereupon Lindgren stomped it to death.

Helpful Rabbit Frees Deer

Nebraska has a modern-day version of the fable of the mouse freeing the lion. The Nebraska Game Commission has been live-trapping and releasing whitetailed deer as a part of biological studies. Late in January a deer entered a baited trap and was caught. A rabbit, however, chewed a hole in the netting through which the deer was able to escape. Only compassion for the deer must have motivated the bunny. The netting had a mesh too large to confine a rabbit and contained no flavor of edible interest to cottontails!

Refuge Assistant Dies

Roy E. Lee, refuge assistant at the Daniel Boone Wildlife Management Area, died suddenly on February 22 at his home on the refuge. A heart attack was the cause of his death.

Lee had been employed at Daniel Boone for six years, and was a friend of hundreds of hunters who met him at the Edgemont Checking Station.

Lee was a native of Murphy, where funeral services were conducted. Survivors include his wife, three sons and a sister.

Wildlife Commission Director Clyde Patton said, "We deeply regret the tragic loss of Mr. Lee. In his years at Daniel Boone he made a real contribution to wildlife management and conservation in North Carolina, and his services will long be remembered."

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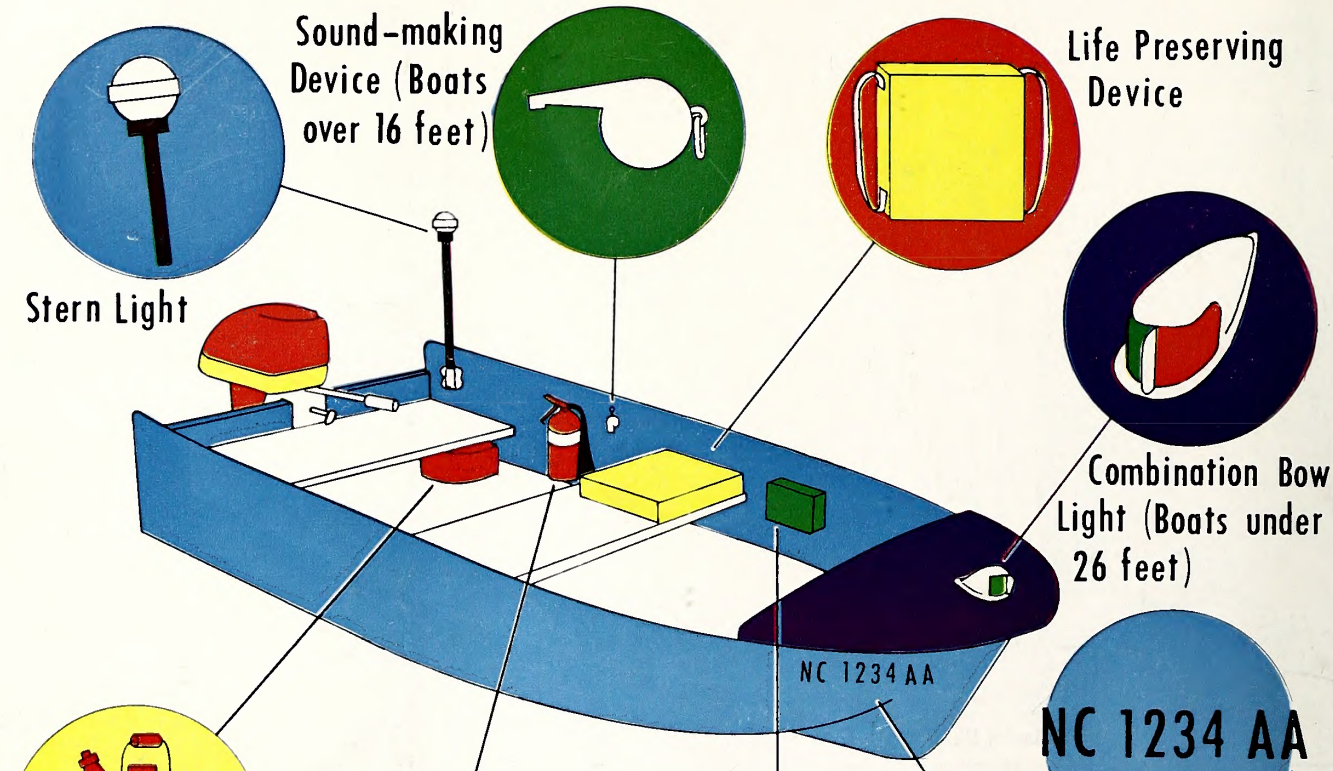

Stern Light

Sound-making Device (Boats over 16 feet)

Life Preserving Device

Combination Bow Light (Boats under 26 feet)

NC 1234 AA

Number Required On Boats Over 10 Horsepower

GAS

Spare Gas Recommended

Fire Extinguisher (Enclosed Fuel Tanks Or Over 26 Feet)

First Aid Kit Recommended

Skipper also suggests:

- ★ Anchor
- ★ Paddle
- ★ Compass
- ★ Flashlight
- ★ Spare Shear Pins
- ★ Extra Rope

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Wildlife

TEN CENTS

in north carolina

Photo by Jack Dermid

"RAIN FROG"

The green tree frog, shown enlarged about three times, is a familiar spring and summer songster in eastern North Carolina. He is sometimes regarded as a weather prophet, for his quonk, quonk, quonk, quank is often heard preceding rainstorms. At night he blends his voice, which from a distance sounds like a ringing cowbell, with the songs of other species to help produce the tremendous frog symphonies of the low country. Listen for him!

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

Sparrows look somewhat alike, and to many people, a sparrow is simply a sparrow. But each species has identifying features that can be spotted by close observation. One of the easiest sparrows to name is the tiny chipping sparrow, shown on its nest in a grapevine, who wears a rufous crown and has a white stripe over its eye with a black one through its eye.

The chipping sparrow is an abundant summer resident throughout North Carolina. It is a friendly species that is often seen searching for tidbits near doorways or heard singing from backyard perches. Its greenish-blue eggs, speckled with brown at the large end, are placed in nests lined with hair. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

How to Become a Wildlife Protector

By Robert B. Hazel

Chief, Wildlife Protection Division

Photos by Jack Dermid

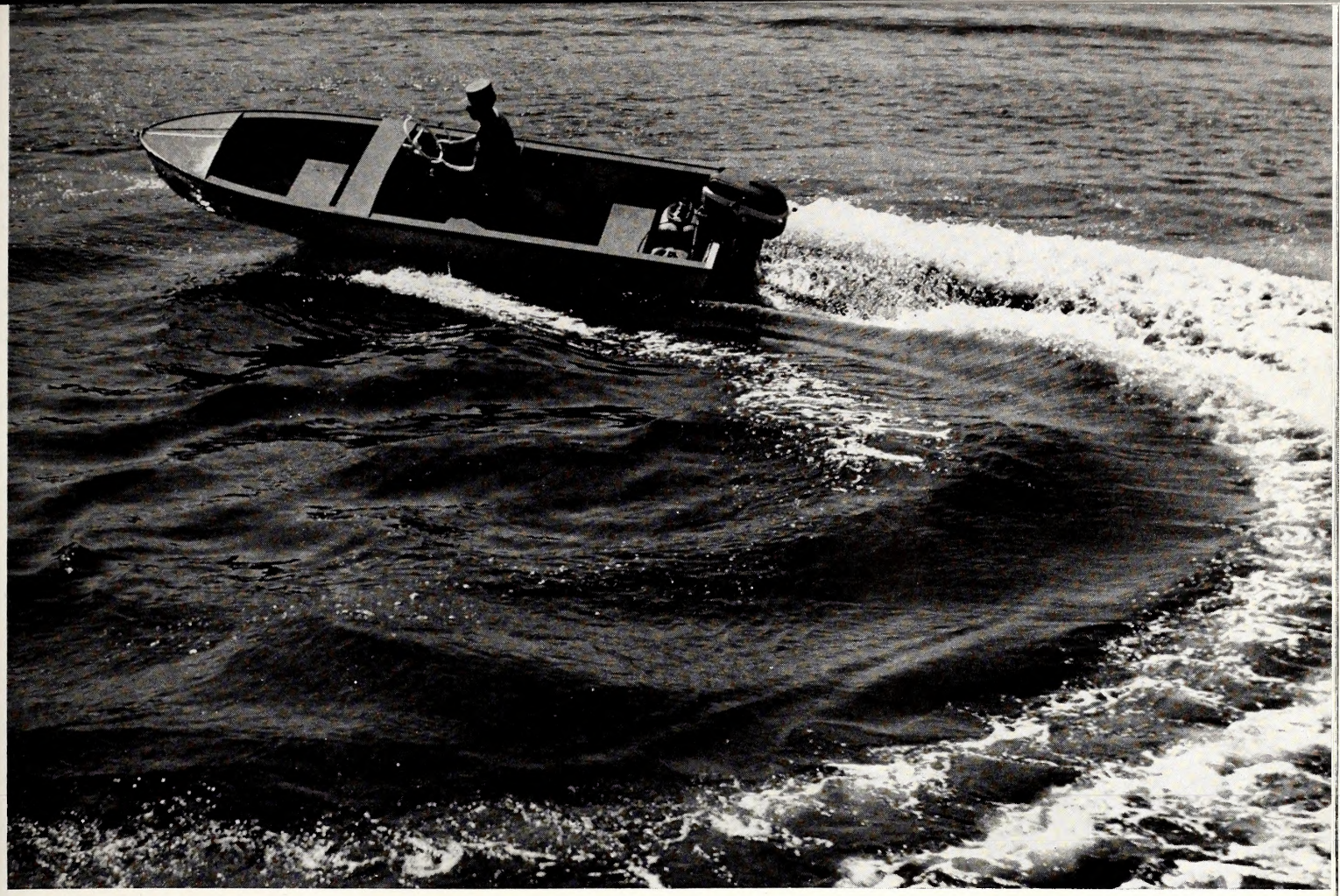
Tarheel wildlife protectors have earned a national reputation for the outstanding job they are doing in conservation. This important article tells why and outlines the policy for selecting and training personnel.

WILDLIFE protectors attending classes at a university? Who ever heard of such a thing? To the average person, this may seem to be a strange occurrence, but it happens regularly each year in North Carolina and some other progressive states. Let's explore some of the reasons behind such training, and see what benefits are derived from it.

Most industrial and governmental organizations recognize that there are several elements of personnel management which are basic to a successful program. Some of these are: (1) proper selection of people for employment, (2) proper training prior to or upon entering employment, (3) proper supervision of employees, and (4) a planned program of on-the-job training, either continuously or at regular intervals. These same essentials, of course, apply to a wildlife law enforcement organization. This was recognized shortly after the Wildlife Resources Commission was organized, and steps were taken to make these things a part of the Commission's program.

Personnel Selection

Selection of the right man for the job is the first matter of concern. During the past ten years, the Commission, working with the Institute of Government at the University of North Carolina, has evolved a process of personnel selection which has brought outstanding results. The objective of this process is to select approximately 15 to 25 well-qualified young men for pre-service training as prospective wildlife protectors each year.



Left: A highly trained team of Protection Division men plan strategy for air-ground operation against game law violators.

Above: Wildlife protectors are well equipped to do their job. They have modern boats, radio-equipped cars, and uniforms.

The first step in the selection process is the screening of employment applications which have been received throughout the year. This screening consists of determining whether or not the applicants meet the minimum acceptable standards for employment, which have been set by the Commission and the State Personnel Department. According to these standards, an applicant must be:

(1) Between 21 and 35 years of age.
(2) Between 66 inches and 78 inches in height.
(3) Between 140 and 235 pounds in weight. The height and weight ratio should be reasonable.
(4) A resident of North Carolina for one year.
(5) A citizen of the United States.
(6) A graduate of high school.
(7) Able to pass a physical examination showing no physical handicap which would interfere with the performance of duties.
(8) Of good moral character as evidenced by not having been convicted for any criminal offense involving moral turpitude.
(9) Willing to take the competitive mental and written examination for entrance into the three-weeks training school for prospective wildlife protectors, conducted by the Wildlife Resources Commission in cooperation with the Institute of Government.
(10) Able to comply with State Personnel Department policies, which prohibit two members of an immediate family being employed at the same time in the same administrative unit.
(11) Willing to accept employment in any part of the state.

After this initial screening, the candidates who meet the minimum requirements are sent forms to be used in obtaining physical examinations. These examinations are performed by a physician of the candidate's choosing and at the candidate's expense, using standards fixed by the Wildlife Protection Division. Each candidate is also required to submit forms prepared by his local police and/or sheriff's department, certifying that he has no criminal record. In addition, he is required to submit a transcript of high school and college (if any) scholastic grades. These forms are all returned to the Raleigh office and carefully screened, eliminating those who do not meet the physical standards and any who have criminal records.

The remaining candidates are then invited to take a series of competitive examinations, conducted by the Institute of Government in Chapel Hill, North Carolina. The tests which are administered are the Army General Classification Test (an IQ test), a written test to determine the candidate's knowledge and aptitude in the wildlife field, and an oral interview. Plans for this year include the use of certain physical agility tests. The oral interview board consists of several people from the Commission and the Institute. Written tests require one hour each and the oral interview about 20 minutes.

Before employment, protectors are required to pass an intensive training course conducted by the Institute of Government.

Besides classwork on laws and enforcement procedures, the men are taught how to defend themselves. Shown is class in Judo.

The testing program is supervised by a staff member of the Institute of Government who specializes in this field of personnel management. The number of men who are invited to take these examinations each year may vary anywhere from 50 to 100, depending on the number of applicants who have been screened.

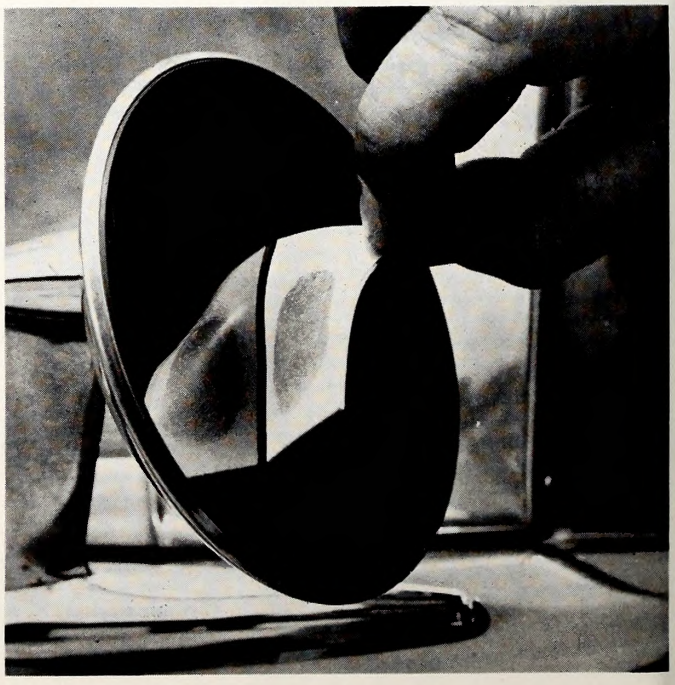
On the basis of these examinations, the group of candidates is narrowed to approximately 30 to 35 people who appear to be best qualified. The next step is to make exhaustive background investigations of these candidates. These investigations are conducted by the Protection Division supervisors in the district in which the candidates' homes are located. This information is used as a basis for the final selection of 15 to 25 candidates who will attend the pre-service training school.

Pre-Service Training

The pre-service training school consists of three weeks of intensive training for the selected candidates, given by the Institute of Government in Chapel Hill. The training is furnished free of charge, and the candidates are housed and trained at the Institute's modern building on the UNC campus. The following subjects are taught: Report Writing, Law of Arrest, Law of Search and Seizure, Game and Fish Law, Organization of the Wildlife Resources Commission, Organization and Function of the Commission's Six Divisions, Fundamentals of Game and Fish Management, Law of Evidence, Public Speaking, Firearms and Self-Defense, First Aid, Court Procedure, and Federal Wildlife Laws and Regulations.

Training moves at a fast pace and strict standards of achievement are required through frequent ex-

Methods of collecting evidence for use in the courtroom are an important part of protector training. Here, a fingerprint . . .



aminations. Classes begin at 8:00 a.m. and end at 8:30 p.m., with the remainder of the evening devoted to study. The Institute's fine library is made available for these study periods. The staff of instructors is made up largely of professionals from the Institute of Government, the Commission, the Fish and Wildlife Service, and the North Carolina State College Zoology Department. The training course is considered by many to be the most thorough of its kind offered anywhere in the United States.

Placement Of Candidates

Upon graduation from the pre-service school, the candidates who have successfully completed the training program are placed on a standby list to await employment by the Commission. Two trainee positions are kept filled from this list of candidates. When a vacancy occurs among the staff of Wildlife Protectors, the normal procedure is to place the trainee who has worked the longest period of time into the permanent position which has been vacated, unless circumstances dictate otherwise. For instance, it is contrary to the Commission's policy to place a man in a permanent position in his home county, for obvious reasons.

Trainees work under the close supervision of experienced personnel, and their work undergoes continuous careful evaluation. In addition, when a trainee moves into a permanent position, his first six months of work is considered a probationary period, during which he is carefully evaluated. If at the end of six months his work is satisfactory, he becomes a full permanent employee. Even then his work undergoes continuous evaluation. This is accomplished through observations of his work by his supervisors, and by efficiency ratings which are determined for all wildlife protectors every six months.

In-Service Training

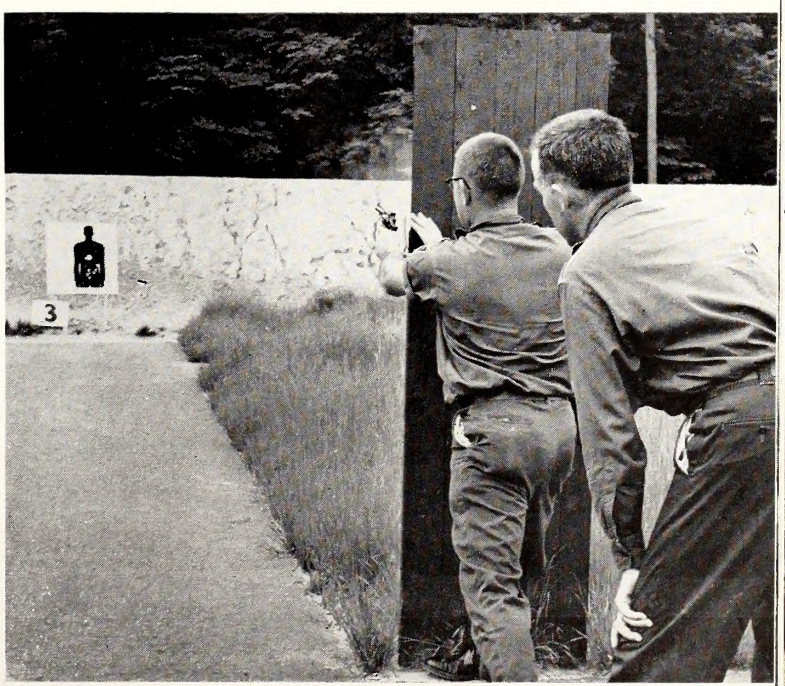
Regular, well-planned in-service training is considered to be an essential part of the wildlife law enforcement program. The objective is to furnish each officer of the division one week of in-service training each year. The training program is planned several years in advance, and is designed so that each year's training builds upon that received during previous years. Each man must successfully complete each phase of this training before he is allowed to move on to the next phase. Wildlife protectors advance from Basic through Intermediate to Advanced training. Subjects usually taught in the Basic Protector's Training School are: Law of Arrest, Collection and Preservation of Evidence, Game and Fish Law, Fingerprints and Plaster Casts, Law of Search and Seizure, Law of Evidence, Interrogations and Interviews, Courtroom Procedure, Firearms and Defensive Tactics, and Pursuit Driving. Protectors' Intermediate Training Schools provide further instruction on these same subjects. Advanced schools for protectors do not cover as broad a field, but put more emphasis on particular subjects.

In-service training schools for supervisors and patrolmen differ from the protectors' schools in that in addition to the subjects listed, a great deal of additional instruction in personnel supervision and management is included. In all in-service training schools, high scholastic standards are maintained.

In addition to the one week of in-service training each year at the Institute of Government, oc-

. . . is lifted from an auto mirror. Students make plaster casts of footprints. Thorough training pays dividends in efficiency.

On target. Fire! Although protectors are seldom called upon to use firearms, they are prepared for action if need arises.



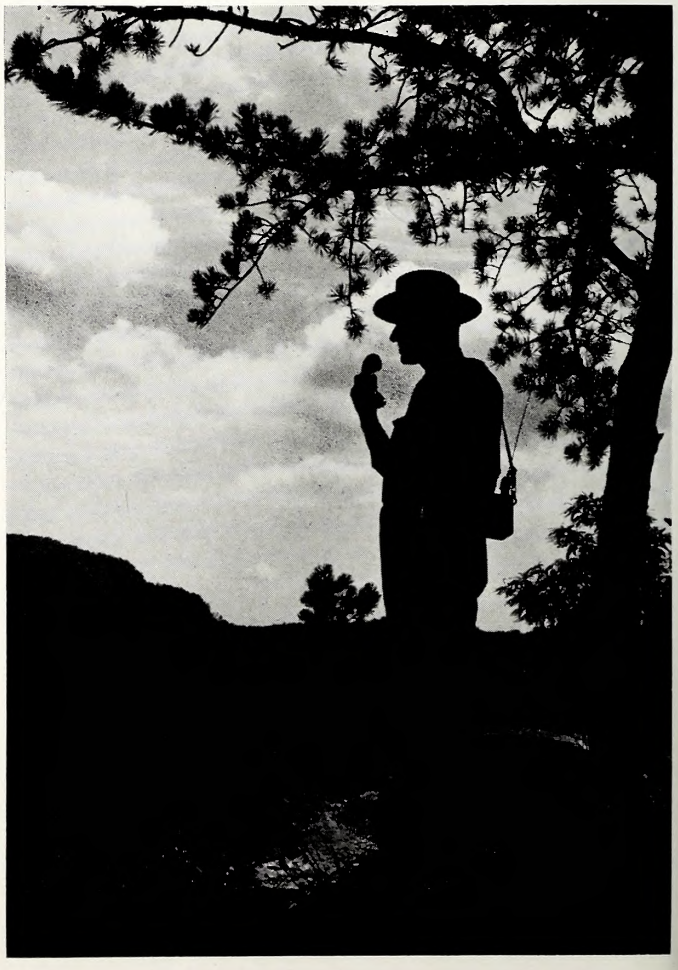
Routine tasks of checking game bags, creels, licenses, sporting equipment, and motorboats are only a part of protector's job.

casional one-day schools in the various districts are conducted by personnel of the Commission and the Institute, to deal with particular subjects in which instruction is timely.

Results

The program of selection, placement, and training now in use is responsible in a large measure for the present high standard of efficiency attained by the Wildlife Protection Division. We believe that our present staff of officers are better qualified to do their particular type of work than any similar group anywhere in the United States. This is evidenced by the fact that we have continued to increase the effectiveness of our law enforcement program without increasing the number of personnel since 1953. License revenue has continued to climb during the years, and this is, in a large measure, a result of better law enforcement. It must be recognized that while a majority of sportsmen willingly purchase licenses and comply with the laws and regulations, there are a considerable number of people who hunt and fish who would not comply with these requirements were it not for a strict enforcement program.

The success of our program is further evidenced by the fact that many other states have come to us for information which they are using in building similar programs in their states. We are proud of the fact that we have to some extent been pioneers in this field, and we feel confident that we will continue to achieve higher standards of efficiency by continued improvement in our selection and training methods. The Institute of Government deserves the major share of the credit for the progress that has been made, and we are very fortunate to have such an organization to help us with our program. Without their help, such a program would have been next to impossible to accomplish.



Many jobs are not routine, and protectors are subject to duty day and night. Walkie-talkie is used in stakeout for violator.

Wildlife protectors play an important role in conservation education. These men answer visitors' questions at fair exhibit.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Registration of New Boats

Boatmen who want to get brand new craft on the water the same day it is purchased may use a bill of sale from the boat dealer in lieu of a registration certificate. The bill of sale must be notarized, carry a complete description of the boat, and contain a statement that a certificate of registration has been applied for. Such bills of sale will be valid until a certificate is received, but not longer than thirty days. This does not apply to boats purchased from private owners. The policy was designed by the Wildlife Commission as a convenience to new boat owners.

Public Hearings—Hunting, Trapping Regulations

As it has for the past decade, the Wildlife Resources has scheduled a series of nine public hearings to give sportsmen an opportunity to express their opinions and desires regarding the 1960-61 upland game hunting seasons. All of the meetings will be at 7:30 p.m., and all will be held in the county courthouse of the towns involved except Rocky Mount, where the meeting will be held in the city court room. Following are the dates and places:

May 17, 1960	District 9	Sylva
May 18, 1960	District 8	Morganton
May 19, 1960	District 7	Dobson
May 20, 1960	District 6	Albemarle
May 23, 1960	District 5	Graham
May 24, 1960	District 4	Elizabethtown
May 25, 1960	District 3	Rocky Mount
May 26, 1960	District 2	New Bern
May 27, 1960	District 1	Edenton

In-Service Training Schools Completed

The entire law enforcement staff of the Wildlife Resources Commission has completed a one-week in-service training course at the Institute of Government, U.N.C., Chapel Hill. Major subjects for the course were the 1959 Boating Safety Law and the law pertaining to pursuit driving. Each year wildlife protectors are given a refresher course to keep up with current law and law enforcement techniques.

In March all wildlife refuge personnel were given a basic course in fish and game law, the law of arrest, search and seizure, and courtroom procedure. Refresher courses will be given to this same group in future years.

Last Frontier for Wetlands

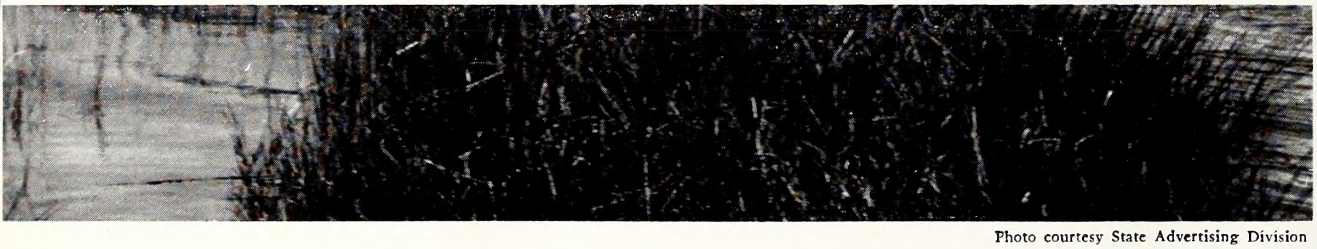


Photo courtesy State Advertising Division

By Otto Florschutz
Waterfowl Biologist

Waters are ebbing from North Carolina's last frontier for wetlands, the coastal salt marshes that support a wealth of wildlife. Salt marsh mosquito control methods place an emphasis on draining the marshes—but a waterfowl biologist shows that mosquito control could be beneficial to many forms of Tarheel wildlife.

MANY thousands of acres of coastal North Carolina are composed of salt marshes. These are usually vast expanses of needlerush or cordgrasses which border the sounds and the mouths of the rivers which empty into them. These salt marshes remain as our last undeveloped frontier for wetlands. As undeveloped and undisturbed areas, they provide valuable habitat for various species of waterfowl, shore birds, and furbearers and they furnish valuable elements and compounds necessary to the food chains of fishes, shellfish, and other marine animals.

However, these same salt marshes also produce millions of pest mosquitoes, so familiar to East Carolinians during the warmer months of the year. The mosquito has caused many problems that affect health and comfort and economic development in many areas.

Tourist camps, swimming beaches, and fishing areas have lost thousands of dollars worth of business when pestiferous swarms of mosquitoes appeared. Often, the salt marsh mosquito was the cause of these and similar misfortunes.

Two of North Carolina's important pest salt marsh mosquitoes are *Aedes sollicitans and A. taeniorhynchus.* Both mature from egg to adult in about 10 days during the warmer months of the year. Unlike other groups of mosquitoes, which deposit their eggs directly in water, most salt marsh mosquito eggs are laid in the moist soil of salt and brackish marshes. The eggs then go through a

curing period of approximately three weeks and then, when the marsh is flooded by high tides or heavy rains, they hatch into swimming wigglers.

From the wiggler stage, the mosquito develops into an adult that may migrate as far as 40 miles to feed on the blood of a warm-blooded animal such as man. Only the female mosquito is equipped to pierce the skin and take blood. Afterward she is ready to lay her eggs. A meal of blood is essential since egg-laying cannot begin until that meal is completed. The male mosquito does not bother man since he feeds exclusively on plant juices and rarely ventures far from his place of hatching.

Since these mosquitoes are a major pest of man wherever salt marshes are found, many control efforts have been exercised against them all over the country. Early controls involved covering marshes with oil and kerosene. Other practices included marsh drainage or filling. Since the extensive development of chemicals after World War II, hundreds of different chemical compounds have been tested and used. One of the most effective of these was DDT. It could be sprayed over thousands of acres of marsh easily by airplane and its cost was reasonable. However, not long afterward scientists found that mosquitoes had developed a resistance to DDT and even increased dosages would not control them. Since that discovery, more potent chemicals have been used as controls, but soon the mosquito became immune to these also.

Prior to the time of chemical usage, the most commonly used method of controlling salt marsh mosquitoes was ditching the marshes. This program consisted of cutting thousands of linear feet of ditches into the salt marshes and mosquito control —by rapid drainage of surface waters—did occur. This type of drainage tends to eliminate puddles of water in a marsh in which mosquitoes can develop. But—it was also found that in these ditched marshes a sudden lowering of the water table and drastic vegetative changes soon followed. Since chemical warfare on mosquitoes is only temporary and can be quite costly, many mosquito control agencies have reverted back to the ditching type of salt marsh mosquito control. This method of control is taking place in North Carolina salt marshes at present. Although this is the most practical type of control in *some* of our areas it is by no means best in *all* of our coastal marshes. And ditching a salt marsh is of no aid to wildlife; rather it is destructive to wildlife food and cover plants. Our last wetlands frontier for wildlife is being deformed and, in some instances, ruined by man.

Recent studies in Delaware, Florida, and New Jersey have shown that salt marshes can be properly managed so as to be both an efficient salt marsh mosquito control and a benefit to wildlife, particularly waterfowl. The holding of water in these salt marshes, rather than its rapid drainage, has been the answer. The construction of water impoundments, of holes and dikes, potholes and ponds, has allowed both natural and domestic food plants to grow. By retaining constant water levels in certain portions of the marsh, submerged waterfowl plants become established and female salt marsh mosquito egg-laying sites are reduced. The creation of impoundments often tends to freshen the water and new and better food plants appear.

Openings in vast expanses of solid marsh show utilization by dabbling ducks such as mallards, black ducks, and teals. These openings can be created by blasting, digging, and diking, depending on marsh types and soils, water supply, and economics. A greater variety of ecological conditions, and thus more food variety, usually occurs in well managed impoundments.

In addition to increased usage by wildlife and increased salt marsh mosquito control, impounded tidal marshes may prove beneficial by serving as recreational, gunning, and fishing areas. Impounding of water also aids in the reduction of fire hazards by the flooding of areas which contain much dry vegetation, and also by the creation of water barriers to prevent the spreading of fires.

Although the initial cost of proper impounding is higher, the maintenance of such control is less and serves a two-fold purpose in conservation as well. An effort to coordinate mosquito control and wildlife management is by far the greater benefit to the people of North Carolina.

Photo by Jack Dermid

Fish Management at Work: Sandhills Lakes

Photos by Duane Raver

Bagget's Lake, Sandhills Wildlife Management Area near Hoffman, reaches its final stages of draining. This meandering stream channel contains thousands of bass and bluegills.

Like to try some free fishing? And help gather some valuable information while you're at it? Here's a progress report on a unique cooperative experiment.

SHORTEN the time between bites—that was the goal when the Wildlife Commission launched the Sandhills Lakes project in 1957. With the cooperation of fishermen using the lakes, the Commission hoped to learn facts about fish management that could be applied to hundreds of other lakes in the Coastal Plain. Now, three years and 9,000 fishermen later, it's time for a progress report.

As explained in the May 1957 issue of *Wildlife*, seven lakes on the Sandhills Wildlife Management Area were selected to test various practices that might improve fishing. The value of the experiment depended on detailed catch records provided by fishermen taking advantage of free angling.

A good beginning has been made. More than 9,000 fishermen have caught over 14,000 fish. Catch cards show how long it took each fisherman to catch his fish, the species caught, and the lake fished.

Two Lakes Drained Periodically

Two lakes, Broadacres and Bagget's, are drained periodically. All fish are recovered during the draining, and are carefully recorded. All bass and bluegills of catchable size are immediately replaced in the lake. The purpose of this "population manipulation" is to reduce competition among the bass and bluegills, and to increase the rate of growth and thereby increase fishing success.

Broadacres was treated this way in February of 1959 and Bagget's in February 1960. Thus far the fishing returns indicate that this technique holds considerable promise.

Extreme Winter Drawdown

Another method is being used at Crappie Lake. An extreme winter drawdown of the lake level for the past two winters has reduced the lake to 10 percent of its normal water capacity. The purpose of this method is again to reduce competition between bass and bluegills, but here this is accomplished in a natural manner—in the drawn-down condition bass can clean up the smaller fish more easily.

It's too early to evaluate results of the extreme drawdown method in Crappie Lake, but—as with the drainage method on two other lakes—this seems to hold promise for improving fishing.

For Purposes of Comparison

Three lakes are being left for purposes of comparison. Crawford, Kinney Cameron, and Gum Swamp have not been drained but are producing fish in catchable numbers. These serve as a check on techniques used in the other lakes. A fourth lake, Scotland, was originally included in the project but was dropped following a break in the dam.

Within a few years the biologists working on the project hope to be able to compare long-term results from the six lakes now under study, and make some conclusions that will affect fish management in many other small impoundments.

What's In It For You?

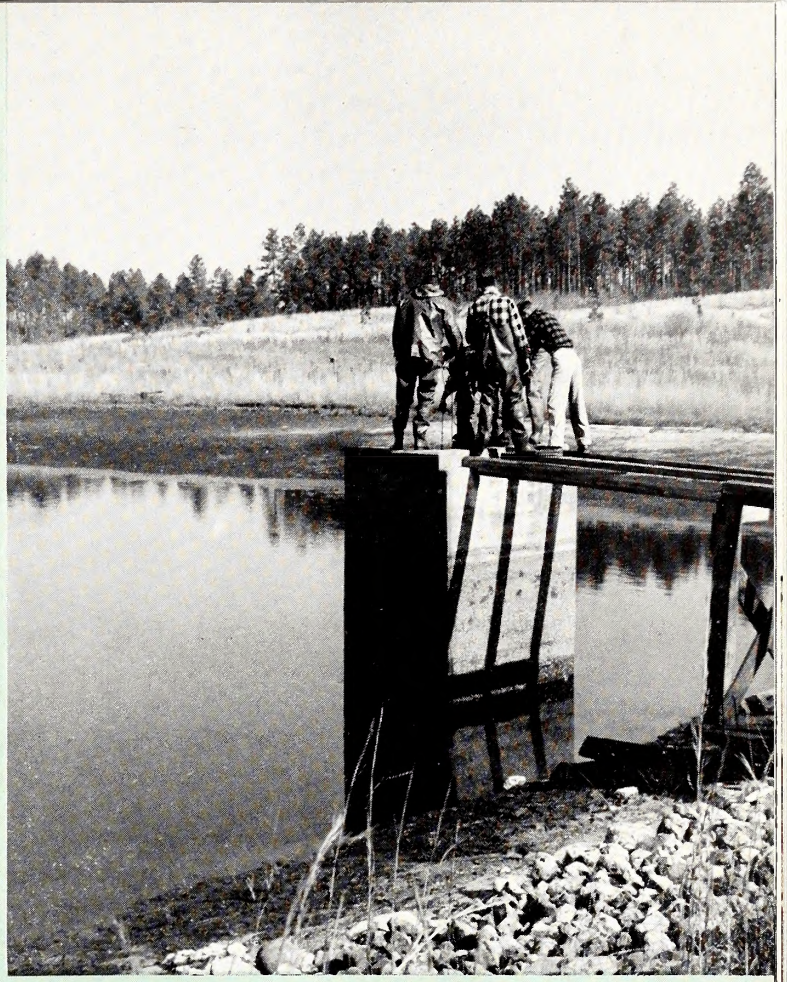
Fishermen who are cooperating in the study are finding that bass up to seven pounds and bluegills up to a pound are not too unusual in these lakes. Average fishing success is higher than for most areas, although it's no secret that slightly less than half the fishermen catch almost all the fish. That's due to differences in fishermen rather than the fish.

Fishing in the Sandhills Lakes requires a permit, available from the Hoffman Checking Station. There is no charge for fishing in the lakes, but you must have a permit and turn in a catch record card at the end of the day.

To help the fisherman, the attendants at the checking station will have information on conditions at any particular time, and will suggest effective baits, the best times of day, and the lakes where recent fishermen have been successful. Maps of the various lakes are posted in the checking station to show locations of bream beds and other helpful information.

Your Help Is Needed

The work on the Sandhills is actually serving two purposes—to provide better fishing in these particular lakes, and to gain information that can be used on other lakes in North Carolina. You are invited to share in the project by helping fish these lakes. The fish and fun are yours; the Wildlife Commission will gain valuable information.



Fish biologists pull another damboard in the slow draining of Bagget's Lake. Few fish are stranded as the water falls a few inches an hour. Fish are sluggish in the 45° water.

Fish Biologist W. C. Carnes (left) and Project Leader Robert Humphries help sort the fish collected in the "kettles" below the lake. Here a six-ounce bluegill is being examined.

Spring Comes to the Mountains

Photo Feature by Jack Dermid

SPRING in North Carolina begins in the Coastal Plain and, once underway, races across the Piedmont to the foot of the mountains where it pauses, as if to prepare for its greatest spectacle, before climbing upward. Then, fingers of green sweep up the valleys and south slopes, a conquering spring probing deep into the last stronghold of winter.

Once winter is on the run, the young season surges to the very peaks with its magic of life. Dogwood (above) and serviceberry unfurl white blossoms that swirl in warming breezes, and wildflowers raise a multitude of colorful faces to the sun. The ringing notes of Carolina juncos and the wild drumming of grouse are heard above the rush of tumbling waters, their love songs a prophecy of new life yet to come.

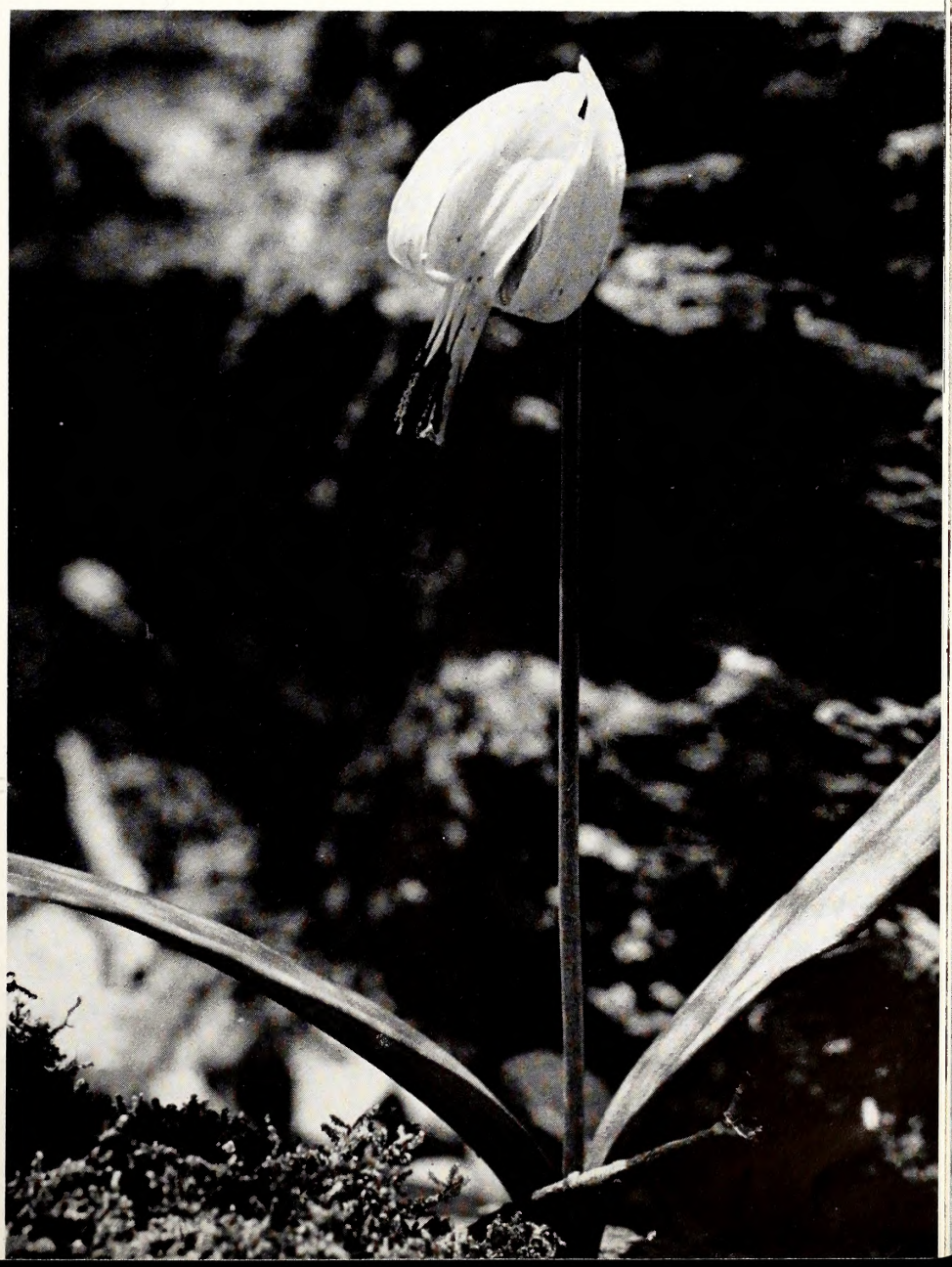
Soon opening buds expand into a canopy of green leaves, and the season is in full swing—a delight to the eye and nostril, an inspiration to the spirit. But, best of all, a mountain spring is not transient. It lingers and lingers, reluctant to give way to the heat of summer.

Suspended in the clearest of water, a brook trout waits for a morsel of food to drift within reach—or an angler's fly!

New leaves of the ramp bring a touch of green to the forest. Garlic-like bulbs are choice food for those who like them.

Depending upon camouflage for protection, a ruffed grouse sits motionlessly on her hidden nest containing ten precious eggs.

A fawn waits obediently for the return of its mother. Wildlife is busy everywhere replenishing the out-of-doors with new life.



The dogtooth violet or trout-lily is among the first flowers of spring. As countless species bloom and fade away, wildflowers stage a beautiful, varied parade of color.

his track in a dusting of snow. Winter is re-
e the mountains and sometimes returns briefly.

Gray foxes often use sawdust piles and slab piles for their den sites. Here a vixen brings a dead animal to her young cubs in front of their den. The young are born in March and April.

GRAY FOX through the year

You may not admire him, but you can't help respecting the gray fox—cussed by some as a poacher, and prized by others as a game animal, the gray fox is one of the most controversial residents of North Carolina's forests.

Text by Don Hankla

Illustrations by Wallace Hughes

THE gray fox enjoys a dubious pleasure—he is probably the most controversial game animal in North Carolina today. The controversy comes in part from the fact that the gray fox's role in life is generally misunderstood.

It all depends on your point of view, whether you are a fox, a fox hunter, or a bird or rabbit hunter. To the person who enjoys hearing hounds on the chase, the gray fox ranks along with his red cousin as one of the finest game animals. If you are a bird or rabbit hunter, to you the gray fox may be a bandit worthy of anything but praise.

Let's look into the life and habits of this animal and see why the controversy exists. Is the gray fox a merciless killer who stalks through fields and forest, wiping out the birds and rabbits that we would like to hunt? Or is he a harmless vegetarian whose only mission in life is to provide a chase for the hounds? Or is there a middle ground, where the fox occupies a place in the scheme of things—is neither "good" nor "bad", but is simply another animal who eats when he can, goes hungry when he can't, and has problems like the rest of us in his pursuit of happiness?

The gray fox is about the size of a small dog. His total length including the tail is about 40 inches, and he weighs between 8 and 11 pounds when full grown. The gray fox differs from the red by having a black-tipped tail instead of a white-tipped tail. In general appearance the gray looks like a common red fox wearing a "grizzly gray overcoat and cap."

The gray fox is adept at climbing, and may go up a tree like a bear or jump from limb to limb using his nails in the manner of a cat. He is at home in wooded areas, swamps and pine woods. Gray foxes, unlike the red who inhabits the fields, are not often seen in open areas.

The gray fox mates during January. After a gestation period of about 51 days, a litter of 4 to 10 young are born. The female has only one litter in a year, and since the male is thought to mate with only one female he can be considered as monogamous. The male remains with the female during the breeding season and helps feed the young until they are able to travel with their mother. The litter disbands by August, when the young go out to find hunting grounds of their own.

Most of the controversy rages about the food habits of the gray fox. Although a carniverous animal—he is flesh-eating and preys on other animals—the fox eats a lot of vegetable matter such as grapes, persimmons, wild cherries, corn, apples and peanuts at certain times of the year.

The fox performs a valuable service for the bobwhite when he destroys large numbers of cotton rats and other rodents that destroy quail nests and compete with them for food.

Foxes are among the most active scavengers in the forest. Animals dying of natural causes are taken home or are buried for eating later. Foxes also take some weak and diseased animals alive.

"Den he cum back in the same track an' jumped up on dis fence right whar he went ober de fust time; he walked on de top rails tell he cum to dat big nest, den jumped right up into it. He is a-laying dar yit, jes' as scrumptious as you please!"—Ernest Thompson Seton

Normally wild fruits and berries and the farm crops that make up part of his diet are scarce during the winter. Then the grey fox must live on what is available—mice and other rodents, birds and rabbits that he can capture, and any carrion such as dead squirrels, rabbits and quail that he may be able to find.

Biologists who have studied the gray fox's habits generally believe that most of the small game animals taken may actually be a service to the remaining healthy animals. A strong point that tends to balance any damage to quail and rabbit populations is the fact that he destroys large numbers of cotton rats and other field rodents that raid quail nests and eat the seeds and other food on which small game depends.

The gray fox cannot be condemned as a completely undesirable menace to small game populations, nor can he be praised without reservation. Between the two extremes of the controversy is a place for our gray-coated Reynard.

GRAY FOX through the year

Healthy and active wildlife can usually elude a fox even in winter snows. Although blamed in part for shortages of small game, biologists believe that in most cases the birds and rabbits that are taken are too weak to escape because of injuries or disease.

Gray foxes mate in January, and the young are born about 51 days later, in litters of 4 to 10 young. The male mates with only one female during a year.

Gray foxes often climb trees in an effort to escape when they are chased by hounds. Adept climbers, they use their nails in scaling trees that put them out of reach of the dogs.

"If we mix equal parts of Red-fox, Coon, and Bobcat, and season the combination with a strong dash of Cottontail Rabbit, we shall have the Gray-fox's disposition synthetically produced. He is shy, he is cunning, he is a desperate fighter when at bay, he loves the trees and yet rejoices in the briar brush, he can run for hours and is an adept at trick-trailing; but will hide in a burrow or up a tree; and the places he frequents are the places where any one of these animals also may be found."

—Ernest Thompson Seton

Although a carniverous animal, or flesh-eater, the gray fox depends on wild fruits and other vegetable foods for much of his diet. In the summer and fall when wild fruits are ripening, you may find him eating the aptly-named fox grapes, persimmons, wild cherries, apples and even corn from a secluded field. He will eat eggs, snakes, grasshoppers, and almost any other food that could be considered edible.

When winter wanes and the nights grow warmer, foxes will often seek a high knoll where they bark, seemingly at the moon. Most barking is done in the night, and sometimes is a blood-curdling scream instead of a bark.

Photo by Jim Lee

Quail tracks show where birds sought honeysuckle berries and other tall-growing wildlife foods such as bicolor lespedeza.

Photo by Ronald Harris

Grain was packed in five-pound bags for distribution over Catawba, Alexander, and Wilkes counties by the Hickory Aero Club.

About 9,000 Pounds of Feed Distributed over Weekend

By Paul Fogleman

Editor's Note: It was gratifying the way individuals, wildlife clubs, and youth groups rallied to help wildlife during last winter's severe snows. Tons of grain and other foods were distributed in critical areas. Space limitations will not permit us to publish all the many reports received, but the following reprint from the HICKORY DAILY RECORD will give our readers an idea of the vast scope of the statewide endeavor.

HICKORY, March 14, 1960. Not likely—at least most people hope—will there be another series of snow storms such as those which have recently struck the Hickory area for several years to come.

And not likely will sportsmen anywhere have a chance to see for several years to come such an operation as was undertaken this weekend to rescue small game from starvation.

But what started as a small idea to feed small game by promoting community-wide efforts on the part of farmers and sportsmen, this weekend snowballed (pardon the expression) into Operation Airlift.

By the time the sun was sinking on the western horizons Sunday it is estimated that some 9,000 pounds of grain and 1,000 pounds of vegetables had been scattered over the Catawba-Alexander-Wilkes counties area.

Actually Operation Airlift was only one part of the operation—but a predominant part, to say the least. Motor vehicles and railroad trains also figured into the venture.

The "save-the-wildlife" project, officially adopted by the Small Game committee of the Catawba County Wildlife Club, started Saturday and before that day was over some 800 pounds of cabbage and 4,000 pounds of wheat and wheat chaff had been scattered over Catawba county.

Six planes and pilots, all representing the Hickory Aero club's participation in the program, scanned the county. Greens were tossed from cars and pickup trucks and grain was scattered from trains along the right of way of the tracks.

Through radio contact from one of the grain-scattering planes, Saturday it was learned that the Wilkes County Wildlife Club, attempting their own airlift operation, had been stymied by the snow.

A joint operation for Sunday was agreed upon and a 5,000-pound load from Wilkes rolled out to the Hickory Municipal airport Sunday morning.

With the aid of Civil Air Patrol cadets from North Wilkesboro and Boy Scouts from Troop One in Hickory, the grain was distributed into five-pound bags to be dropped from planes.

Seven aircraft soared from the Hickory airport runways Sunday and bombing operations which began at noon concluded five hours later.

Rural brush areas from the Banoak school in Catawba county to sections ten miles north of North Wilkesboro were bombarded with grain.

The success of the operation, of course, remains to be seen. But the situation was thought to be critical in some parts of the three-county area, and the grain could have helped many birds.

It was remembered that since the first heavy snow to hit the Hickory area on February 13 that for only a few days had the ground been exposed. Birds and rabbits had to depend on taller wildlife food plants such as bicolor lespedeza and less preferred foods such as honeysuckle berries.

As pleased as anyone with the results of the weekend operation is Wildlife Federation President Tommy Reese who has lauded the Catawba club members for their efforts.

NUMBERING YOUR BOAT

By Luther Shaw
Boating Editor
ASHEVILLE CITIZEN-TIMES

IF you've already placed numbers on your boat in compliance with North Carolina's new boating law, you may recall that in doing so you had misgivings about the exact placement of the character series.

Proper placement of numbers on a boat's curvy bow can prove tricky. But boat owners and two commercial artists interviewed on the subject agreed that one method, described herein, is the most satisfactory.

Many boat owners are using plastic or metal characters, which may be easily glued, in the first case, or attached with screws to any boat's surface. The plastic characters, somewhat new but available at most boating outlets, cost about 20 cents each. Although a bit higher than some metal characters, the plastic characters have the advantage of being completely rust-proof.

The boating law gives no hint on the best placement method. It simply requires the character series be placed on the forward half of each side of the bow; that the letters and numerals be block characters at least three inches in height and of a color which contrasts with the boat's background; and that the number and letter groups be separated by hyphens or equivalent spaces.

This leaves it up to the boat owner to figure out how to position the characters on his boat. In lining them up, should he follow the gunnel? The waterline? Or should he just step back and decided where they look best in relation to where he is standing?

The boat owners and artists asked about this agreed that the number series should be positioned in relation to the gunnel (or gunwale).

This is the part of the boat where the topsides and deck meet. In other words, it is the curved, top outer edge of the vessel.

Begin with this edge in positioning the characters. Drop a few inches below the gunnel (depending on the depth of the side) and with a soft lead pencil, draw a line parallel to the gunnel and about 18 inches in length. A flexible yardstick will prove handy as it will bend nicely to the contour of the side.

The tops of all letters and numerals should be placed squarely against this line. However, before applying the glue (or otherwise fixing the characters permanently), hold a couple of letters along the line to see if the series is going to be high enough to be comfortably away from the boat's main splash. The numbers should be about halfway between the gunnel and a line halfway between the gunnel and the waterline.

If you have placed the pencil line too far down, adjust it upward so the letters will be nearer the gunnel.

It must then be decided how far back from the point of the bow to start the series of letters and numbers. This must be determined by the boat owner in relation to the size of his craft and where the numbers will be shown to the best advantage. Some boat owners are starting their numbers near the point of the bow while others are beginning them as much as two or three feet back. However, 10 to 18 inches from the point seems the most popular starting range. At present, numbers being issued contain seven characters—the letters NC, four numerals, and a letter. With most characters about two inches in width, the entire series, with proper spaces, may stretch up to 20 inches or more.

It will prove helpful in alignment to measure width of the characters and, using the pencil again, drop vertical lines off the gunnel parallel line a little wider apart than the width of the characters. This will clearly show spaces into which characters are to be placed. To guard against placing the letters and numbers in the wrong order, pencil them into the spaces. Be sure to leave a space or put a hyphen between the letter and number groups.

The characters may now be permanently attached with comparative ease and the boat owner may be assured that the placement will enhance his craft's appearance. Any pencil marks left may be easily washed or erased.

Of course, lapstrake boats greatly simplify the number alignment problem. With them, it is just a matter of deciding which of the "planks" is best to follow.

Photo by Jim Lee

THE SKIPPER

Conducted by Duane Raver

SAFETY RULES

REDUCING any sort of safety to a set of "rules" is often misleading and actually may be of little benefit. So it is with boating safety. But if we're going to have safe sport afloat, there has to be a starting place and we feel this is it: common sense and courtesy. Too easy? Let's stop and think about these "rules" for a moment. Both of them take a good bit of thought and sometimes downright concentration. Excessive speed in your boat is eliminated by one or both of these guides. Overloading certainly never occurs in the sensible skipper's boat. Courtesy to others, whether they be boaters, swimmers or fishermen, will end almost all of the annoying and dangerous operations of which some boatmen are guilty. Everyone likes to have fun, but it shouldn't be at the expense of others. In some cases you may have to curtail some of your boating pursuits as a compromise to the safety of others. You and only you can create safe boating. Your safety and that of others is in your hands.

There may be a tendency—particularly among experienced skippers—to become complacent in admiring their own confidence and abilities. This is almost a sure road to ultimate disaster. Never relax your vigilance for one moment even though you feel you have the situation completely in hand.

Caution should be the byword of all skippers. Situation well in hand? It looks like it, but our boating friends know the added dangers of a congested boat landing or dock area.

The apparently over-cautious skipper may be scoffed at for his almost exasperating attention to detail. He may be ridiculed for his reluctance to "take chances". This skipper will come back in one piece —his antagonists may too—but they may one day go on their last boat ride. It's not pleasant to see death by drowning; don't make it necessary to have to witness such a sight before you pledge yourself to common sense and courtesy on the water.

LIABILITY INSURANCE?

By Richard S. Brantley

Executive Secretary
North Carolina Association of Insurance Agents, Inc.

JUST as the government has recognized the need for certain controls over the ownership and use of pleasure boats, the insurance companies who insure these boats have been constantly revamping their policies and rates in an effort to keep up with the increased hazards of congested waterways, high speeds and aquatic sports.

Most boat owners are acquainted with policies which cover their own boats. Certainly this is an important part of owning a boat, but what about insurance for your legal liability to other people? In the event of an accident, every boat owner should be vitally concerned about his legal obligation for bodily injury or property damage to others. Surely he might have damaged his own boat but suppose he has maimed someone for life or been responsible for someone's death by drowning? A boat owner today should not operate his boat without first obtaining adequate liability insurance protection.

Prior to December 2, 1959, liability insurance on the operation of an outboard motorboat up to 50 horsepower was provided in a Comprehensive Personal Liability Policy. On and after December 2, 1959, any new or renewal policies will not cover any outboard motorboats of *more than 10 horsepower*. Thus, a boat owner whose policy is being written or renewed after that date must declare the existence of any outboard motorboat he owns in excess of 10 horsepower and pay an additional premium for this coverage. The annual cost will range from $15.00 to $40.00 depending on the combined horsepower of the motorboat or motors he operates.

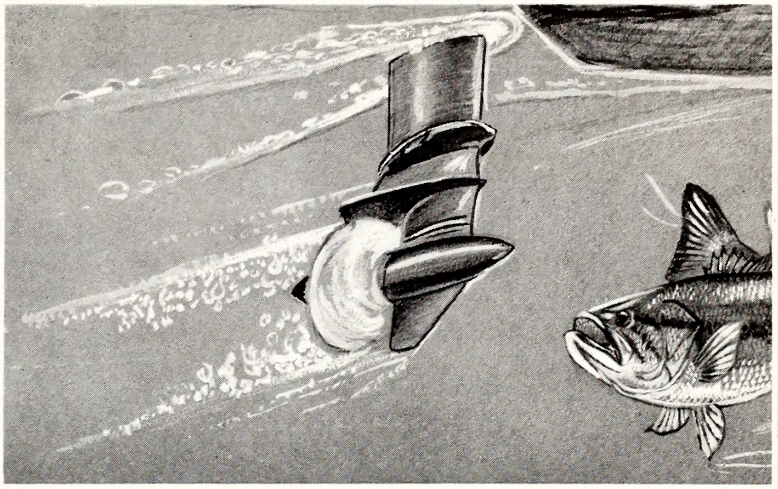
Suppose a policyholder had no outboard motor exceeding 10 horsepower at the inception date of the policy but later acquired one? Under this revised policy he is allowed 30 days automatic coverage during which time he would be compelled to report such acquisition to his insurance agent or company if he desires this protection. You might wonder why this change was necessary. As with any increase in the cost of insurance, the premiums were not sufficient to pay the losses. The losses have increased because of more frequent claims and more severe accidents from operation of boats.

In addition to the increased horsepower of motors, we have no law which regulates the operation of boats by minors. We know that the operator of an automobile is at least 16 years of age, but the "pilot" of a motorboat is not required to be of a certain age, pass a driving test, or demonstrate his knowledge of the rules of the water. Many accident cans be attributed to inexperienced operators and all boat owners should be sure that anyone operating their boats is qualified to do so. If you have any doubt about your insurance protection you should discuss it with your insurance agent.

DO OUTBOARDS SCARE FISH?

This question certainly rates a spot in the top half-dozen "hot argument" makers in fishing circles. Most anglers—and boaters—have very decided opinions, mostly based on speculation or at best one or two isolated instances in their careers. Actually some carefully planned, scientifically executed experimentation has been carried out on this subject. Even with the results of these tests, however, many questions remain unanswered. Probably no clearcut "yes or no" can be given to the perplexing question.

We do know that outboards impart "noise" beneath the water, and that most all fish are capable of receiving these "noises" (or more properly vibrations). So why shouldn't these "sounds" frighten fish? Well, maybe they do, but let's look further into the known facts. Although we can't say that fish "hear" the same sounds we do underwater, we do know that outboard motor sounds are little more than persistent buzzings to the human ear, even at fairly close range. The disturbance of the surface water created by motors is considerable at times, but more often than not is nullified by wave action and water movement. Perhaps, then, we are "crediting" outboards with more than their share of fish-scaring qualities.



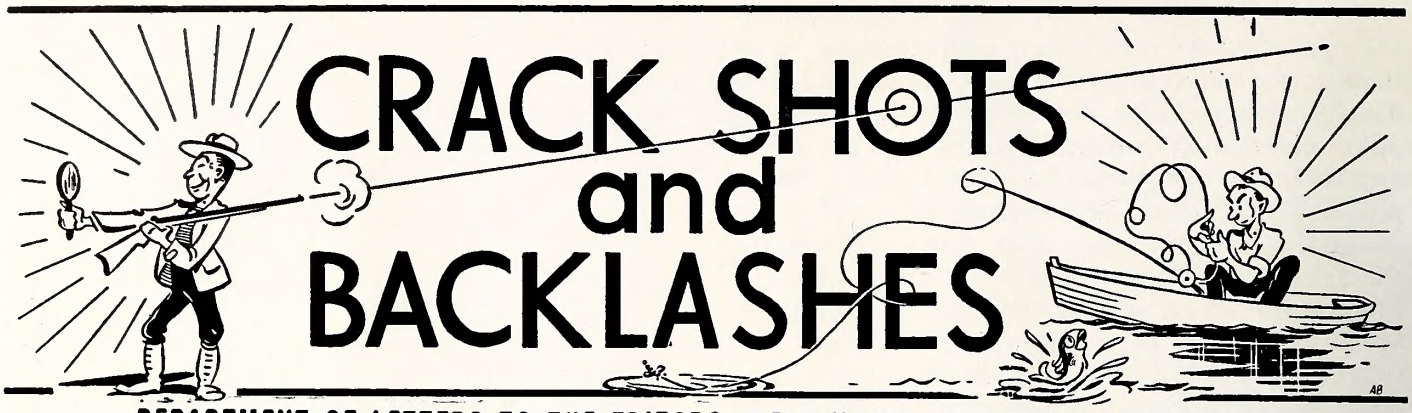
What's going through the mind of Mr. Bass? Fear, curiosity? He may be the only one who can give us the answer to this riddle—and he won't talk. He may be more concerned about a rattled tacklebox than he is about the outboard.

Yet, in clear water particularly, it doesn't take much to put fish down. A flashing bit of metal reflecting a gleam into the water; a crushing footstep on a pebbly beach; a rattled minnow bucket; any of these may send fish scurrying. The throb of an outboard then is bound to disturb them.

Why then, are bass, walleyes, panfish and practically all saltwater game fish taken by trolling with an outboard? Some of these fish actually seem to be attracted by the spinning propellor and the sloshing wake. There are authentic reports of some game fish striking at the flashing prop blade and some skippers drop their lures within inches of the screw in order to catch fish.

Going back to the test we mentioned earlier, the results were that no correlation between catch of fish and use of outboards could be established. In other words, the anglers fishing with boats churning by caught just as many fish as those fishing without motors in the area. It may be risky to draw final conclusions from just one test which must have had several variables threaded through it, but at least it should give us pause to think.

It's very likely that sharp noises created by the angler himself may well scare fish more than the steady hum of even a 75-horse kicker. Certainly no angler likes to be "buzzed" by thoughtless boaters, but maybe it scares the fisherman more than the fish!



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

To serve as a member of the North Carolina Wildlife Resources Commission is an honor and a privilege. Any member of this important group, past or present, will tell you that. He can, but probably won't tell you that there are numerous heartaches and headaches connected with the job. There is no remuneration except for a small travel allowance and per diem for attending meetings. There is compensation only in the satisfaction that comes from unselfish service.

A Commissioner is a politician in the finer sense of the word. He is an expert in political-governmental affairs, just as members of the executive and administrative staff are experts in the field of wildlife conservation.

The Commission, as a whole and as individual members, is subject to tremendous pressure from the public, from groups and individuals. Most of the heartaches and headaches come from this pressure, and the need to defend sound biological principles in the face of mistaken or misinformed or uninformed groups and individuals.

After nearly thirteen years of continuous operation the North Carolina Wildlife Resources Commission has gained a nationwide reputation as the finest of its kind anywhere. There may have been errors in act or errors in judgment during these years, but these have been honest ones, and the Commission has been quick to correct them.

We have just come through one of the worst winters on record. The effects of this winter on wildlife, actual or imaginary, have brought diverse and tremendous pressures to bear. Although becoming lesser in degree, these forces will continue for a while.

It is a condition of "durned if you do, and danged if you don't." But as long as consideration is given first to the wildlife species concerned and secondly to the people who seek after them, we will continue to go forward in sound wildlife conservation.

Any Commissioner will tell you that over the years groups dedicated to sound conservation, such as the North Carolina Wildlife Federation, have been of incalculable assistance in carrying on a progressive wildlife conservation program, and this fact must be recorded on the positive side of the ledger.

Bluebirds and Tobacco Burners

Birds from Wake County tobacco barn

DEAR SIRS: Recently I received a copy of Wildlife and on the cover there were two bluebirds and the house. This brought to my mind a story told me last fall by Mr. A. L. Hoffman, Apex. The story goes something like this: We were discussing the habitats of bluebirds and he said that he had missed those that were usually around his farm in the spring. So, last summer when his son was cleaning the burners in the tobacco barns he found a half-bushel basket full in the burners. They had gone in via the smokestack and fallen down to the burner and could not get out. He suggests that farmers with oil burners of the type with smokestacks running through the top of the barn stop up the stacks or open the door to the burners. The idea occurred to me that perhaps you could write something on the subject and publish it the magazine and the daily papers throughout the state.

Incidentally, I do rural circulation for the RALEIGH TIMES and NEWS AND OBSERVER, and contact hundreds of farmers and friends of wildlife. I am a hunter and like to discuss such matters with those in the rural areas. CHARLIE HERBERT, GARNER

On several occasions *Wildlife* has printed articles with regard to mortality of bluebirds in tobacco barns. We are grateful to Mr. Herbert for calling attention again to an existing and persistant situation.

At press time most Tarheel bluebirds had located nesting sites without becoming entrapped. But let's remember the problem next year, shall we?—Ed.

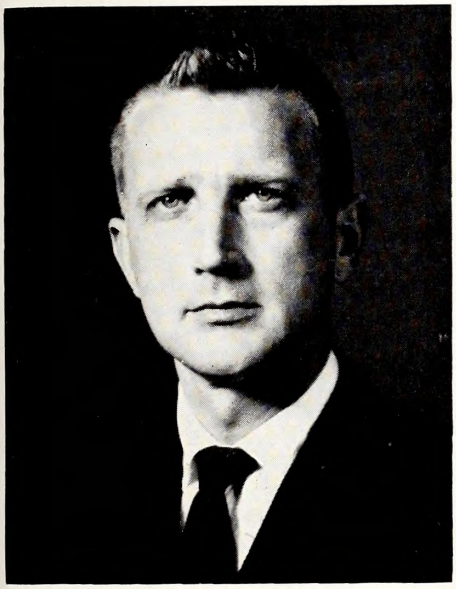
A Problem for Lucretia

DEAR SIRS: There have been a lot of yellow hammers or flickers in my barns. They peck holes in the side and then the barn leaks. Is it all right for me to kill them? Will you tell me some way to get rid of them? JERRY ROZIER, ST. PAULS

Any wildlife species may be killed if taken in the act of depredation to private property. You might try some type of scarecrow suspended from the eaves of the barn which would swing in the wind, and drive the birds away. Old friend Lucretia Plymph, wild-

life expert from Wake Forest, having taken literally certain editorial advice given in this section, might suggest burning down the barn, thus removing the temptation on the part of the flickers.—Ed.

Extension Worker



Hugh M. Fields

A new educational program is being started in North Carolina to help farmers and landowners realize their fish and wildlife potential.

The program will be conducted from North Carolina State College by Hugh M. Fields, a wildlife specialist for the N. C. Agricultural Extension Service.

Fields' position was created by the 1959 General Assembly on a bill introduced by Senators Emmett Winslow of Perquimans, Wilbur Jolly of Franklin and 35 others. The position was strongly urged by the N. C. Wildlife Federation, N. C. Wildlife Commission, N. C. Travel Council, and N. C. Hotel Association.

Through proper management, Fields hopes farmers and landowners will not only realize the aesthetic potential of their fish and wildlife, but their monetary potential as well.

To carry out his educational program, Fields will assist agricultural agents in developing game and fish programs in their county.

He will conduct demonstrations for landowners, and will assist groups in enlarging and improving their accommodations for hunters and fishermen.

During National Wildlife Week last March, Governor Luther Hodges was presented a book on conservation to focus attention on the nationwide observance. Shown making the presentation are (l. to r.) Clyde P. Patton, executive director, Wildlife Resources Commission; Neill McKay of Southern Pines, state co-chairman of Wildlife Week; and Turner Battle of Rocky Mount, executive secretary of the N. C. Wildlife Federation. This year's theme was: Water—Key to Your Survival.

Deer Eyes

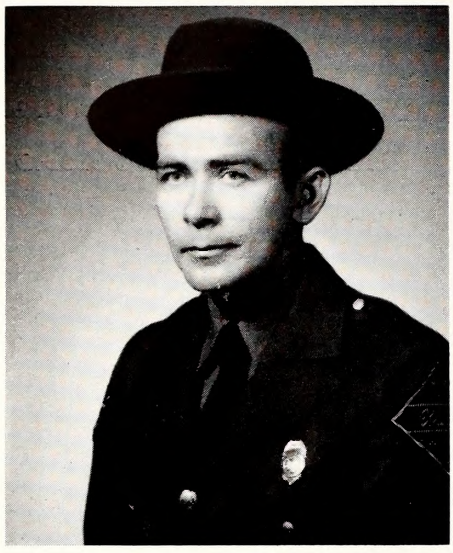
Wildlife biologists of the Michigan Conservation Department have embarked upon a new research wrinkle, the National Wildlife Federation reports. With the permission of hunters, they have been collecting eyes of dead deer. The eyes will be examined in laboratories to determine age of the animals. The process, based on the growth rate of eye lens, may be more accurate for aging older animals than the tooth-wear method now in general use. The eye analysis process also may be adaptable to other species of wildlife. Knowledge of game harvests by age and sex ratios helps to establish intelligent hunting rules and regulations.

Public Hearings on 1960-61 Hunting Regulations

Public hearings on proposed 1960-61 hunting and trapping regulations will be held in the nine Wildlife Commission districts during the month of May. These hearings are held to give you an opportunity to express your opinion on seasons and bag limits for game before the regulations are officially set. All hearings start at 7:30 p.m. on the date given, and will be held in the county courthouse in the city listed except at Rocky Mount, where the hearing will be in the city court room. You are urged to take advantage of the meetings.

Date	District	Place of Hearing
May 17	District 9	Sylva
May 18	District 8	Morganton
May 19	District 7	Dobson
May 20	District 6	Albemarle
May 23	District 5	Graham
May 24	District 4	Elizabethtown
May 25	District 3	Rocky Mount
May 26	District 2	New Bern
May 27	District 1	Edenton

PROTECTOR OF THE MONTH



James L. Cahoon

James L. Cahoon, Wildlife Protector of Hyde County, was born in Fairfield on May 8, 1925, and is the son of Mr. and Mrs. Carroll L. Cahoon. He attended Engelhard High School.

Mr. Cahoon served three years in the United States Navy, and spent two years in the South Pacific Theater. He was employed by the Wildlife Resources Commission in June, 1952, and has attended four Wildlife Training Schools, conducted by the Institute of Government in Chapel Hill.

Mr. Cahoon is married to the former Blandina Credle of Swanquarter, and they have three boys and one girl. He is a member of the Church of Christ, and a member of the Southeastern Law Enforcement Association.

Enforcement Record For February

Persons checked	7,543
Total prosecutions	195
Total convictions	177
Total cases not guilty	12
Total cases nol prossed	5
Total cases dismissed	1
Total fines collected	$1,845.80
Total costs collected	$1,152.10

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

IT'S THE LAW

QUESTION: What is the creel limit on redfin pike?

ANSWER: The redfin pike, being a member of the pickerel family of fishes, is included in the list of pan fishes for which the Commission regulations establish a creel limit of 25. The same regulations, however, provide that there will be no creel limit on pan fishes in and west of Granville (except Kerr Reservoir), Durham, Chatham, Lee, Moore, and Richmond counties.

Chinaberries For Wildlife

DEAR SIRS: Have been reading with interest the articles in Wildlife about food for birds but do not remember the chinaberry tree being mentioned

I have chinaberry trees in my yard and have watched squirrels and birds eat the berries in winter for years, including the bobwhite eating the berries that fall on the ground. These berries stay on the trees until spring, supplying a source of food when needed most. H. B. MARSH, CHARLOTTE

Berries such as these were needed during the winter of 1960. Tarheel wildlife are grateful for wildlife foods such as the chinaberry.

Graduate Training In Wildlife Statistics

Several graduate assistantships will be available at North Carolina State College in July 1960 for persons interested in wildlife and working toward a M.S. or Ph.D. degree in Statistics. Participants in these may elect a minor in any area of biology. Several assistantships will also be available in the Zoology Department for work toward the M.S. or Ph.D. degree with a major in Animal Ecology or Wildlife Biology (in either game or fish). For these, a minor field may be chosen from several subject matter areas, including Experimental Statistics.

For a major in Statistics, applicants should have at least a year of calculus and show considerable aptitude for mathematics. However, it is recognized that few undergraduate students in biology take calculus; and therefore students with strong records in other subjects and who have an aptitude for quantitative disciplines will be considered. In the latter case acceptance will be subject to completion of calculus during the summer of 1950.

These assistantships in the Department of Experimental Statistics are made available under a cooperative Wildlife Statistics Project, sponsored by the game and fish agencies of nine Southeastern states. The objectives of this project are to provide consulting service to state personnel working in wildlife research, and to conduct basic research in wildlife statistical methodology. Graduate assistants will work closely with this program and will be expected to select a thesis or dissertation topic in this area. The stipend will be $175.00 per month for the first year, with increase to $200.00 the second year.

Interested persons should apply to Professor J. A. Rigney, Box 5437, Raleigh, N. C.

Guns Versus Bows

We don't like to start arguments. Once one gets off the ground, however, it should go on until both sides have been heard from. It's a matter of equal time, equal space. If this discussion goes beyond these pages, gentlemen, we suggest the point be settled on the Field of Honor. Let the weapons be verbs, at three-month intervals.

DEAR SIRS: I have just received my March issue of Wildlife and am very much distressed about the remarks made by Mr. Richard E. Clapp of Charlotte. I am sure that he did not mean to exaggerate as much as he did, but some of the statements are rather misleading. I wonder if Mr. Clapp has seen many deer killed with a legal rifle; that is, one permitted for use on a reservation? If he has, I am sure that he has found, as I have, that each was very dead, well bled, and with a much larger hole than an arrow could

I don't care if it is a record! A week's long enough to drink fishy water.

Dogs in a kennel are dogs that are not in trouble! And the sportsman can give wildlife a real boost by keeping his dogs penned when game species are nesting and rearing their young. Free-hunting dogs (and cats) take a heavy toll of wildlife.

have caused. He stated in his letter that a bullet caused a "pencil-like hole" which wounded a deer. A large caliber bullet will, in any instance, cause tremendous shock, much bleeding, and a much larger hole than any arrow.

I personally know of at least four deer that were shot this year with an arrow and never found. I know of another that was lung-shot and had to be trailed for four miles with dogs before it was found. It must have died as much from fright and exhaustion as from the arrow. Useless weight and fat had been run off this deer.

Mr. Clapp also mentioned the patience required for bow hunting as regards the "wood tromping" of the riflemen. I concede that patience is a virtue required by both parties and it is apparent that a good many inexperienced hunters get tired of sitting and walk around. This is done by both riflemen and archers. He cited the experience of being able to "whomp" a big doe with his bow. Two years ago, on a rifle hunt in Mount Mitchell reservation, I was within spitting distance of nineteen doe before two hours had passed. This year I saw only two deer the first day, but that eight-point buck tasted mighty good after a one shot kill from a 30-06. Incidentally, he dropped in his tracks.

I do admit that there is a lot of needless wounding of deer by both archers and riflemen, but if we weigh the fact that if a comparison was made of the number of hunters getting shots at deer, with the ratio of riflemen vs. archers, the archers would be left far behind. I concede archery is a wonderful sport but let's don't get carried away and overestimate its power as a weapon. After all, only a rifle will do the best job of killing a deer, and any experienced archer will admit it. DAVID L. BISHOP, STATESVILLE

Channel Bass

The following brief notes are from the Virginia Wildlife Federation's *News-Record*:

Until some folks started canning channel bass at the plant in Manteo, N. C. about 1930 there were plenty of these big fish for everybody. Chesapeake Bay and Eastern Shore were full of them, even as far up the coast as New Jersey. We have seen schools of them acres in area, turning the ocean to a reddish bronze color.

If our May back cover inspires you to begin raising your own fishing worms and if you would like to have more information about this interesting hobby, send a post card to the Education Division, Wildlife Resources Commission, Box 2919, Raleigh, requesting our sheet on worm culture.

Then they started to run nets around these schools of fish, and kept them trapped for days while they brought in as many as the cannery could handle. This went on for weeks at a time, and it didn't take many years to clean out all of the big brood stock until there were not enough left even in North Carolina to keep the cannery going. In the meantime, sport fishermen had increased in numbers, demands and expenditures, until a sport caught channel bass represented something like a hundred clams to the Outer Banks tourist trade. So the time came when the N. C. Fisheries Commission set up a two-fish bag limit over 32 inches, sport or commercial.

And it is paying off, we have channel bass in both states again, and if it works that well in North Carolina it could work for us too. Another year like the last one and we will have enough channel bass to prompt some fast buck commercial man to clean them all out again.

Also, if we had this law it would be easier to help pick up N. C. illegally caught fish being illegally hauled through Virginia, which would be a federal offense under the Baker law. We surely owe it to our sister state to back them up in this very effective conservation work.

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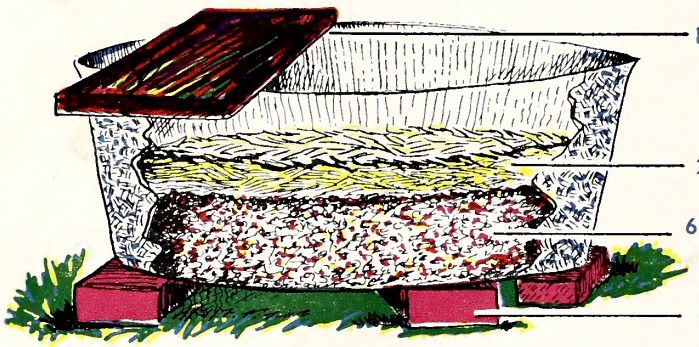
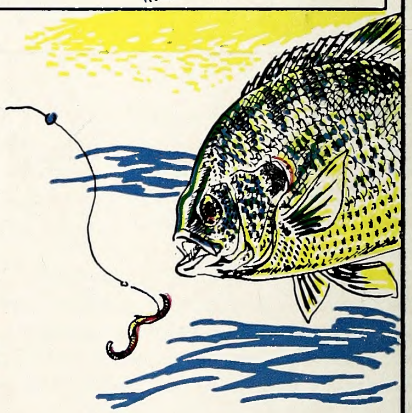
BACKYARD Bait

A painted, galvanized wash tub filled with a mixture of fine clay loam and straw as shown, is fine for your worm farm. Keep moist but not wet. Do not over-feed. Keep ants out.

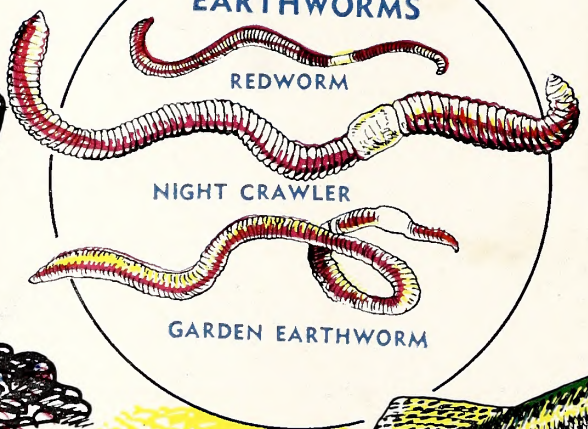


THE EARTHWORM'S HOME

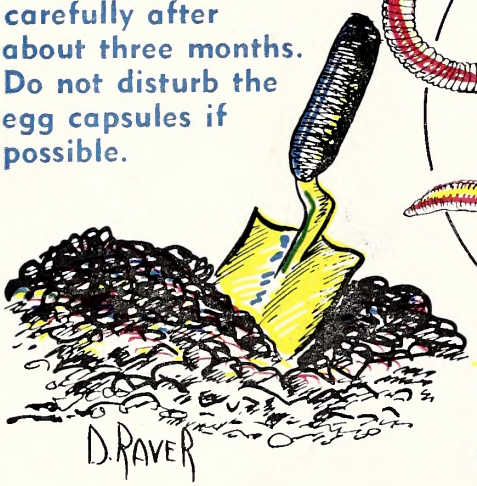
EARTHWORM FOODS

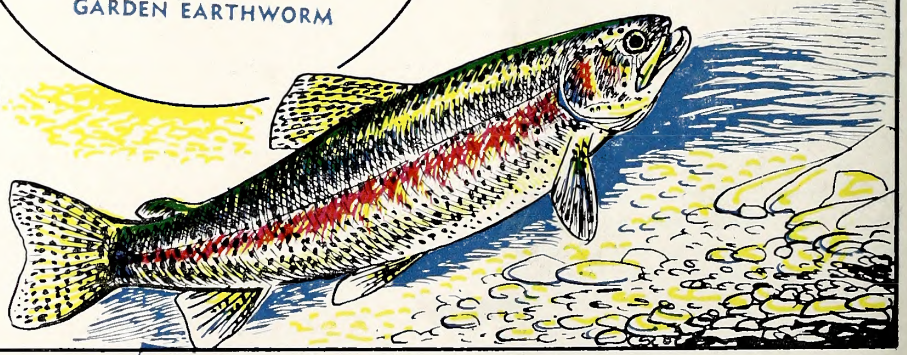


TYPES OF EARTHWORMS



Harvest the worms carefully after about three months. Do not disturb the egg capsules if possible.





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Wildlife in north carolina

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june 1960

Phoebe

. . . the friendly flycatcher who builds a moss and mud nest on the rafters of porches, country bridges, and boathouses. This family scene was photographed at the Matt Thompson residence in Chapel Hill by Jack Dermid.

Wildlife IN NORTH CAROLINA

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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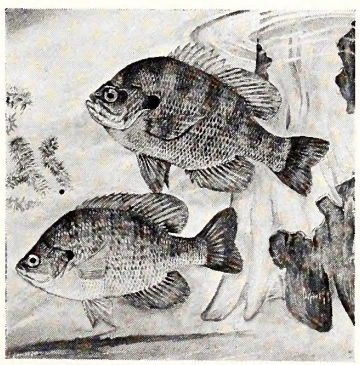

June might well be called "National Bluegill Month"—for it's now that the big copper noses are on the prowl for food. The male at top is usually darker than the female, and often has a coppery band across his forehead. Bright yellow or orange breast coloration is typical of the female. Although anglers often use the term "bream" for the bluegill, this is applied to other small members of the sunfish family as well. We hope that a pair like that in the watercolor painting by Duane Raver will end up at the end of your stringer before very long.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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the paradise that wasn't lost

by Lt. Col. Johnnie D. Duffie
Commanding Officer
Sunny Point Army Terminal, Southport

Vanishing shorelines, wilderness areas opened to commercial interests, hunting and fishing areas gobbled up by the rising tide of civilization—daily you can watch the loss of wildlife-producing lands to the needs of an expanding population. The military establishment has long been the target of many who decry the loss of lands and waters, and at times logic has been on the side of those who ask "Is this loss necessary?"

With vast acreage under military control, many sportsmen look with resentful eyes at some of the Army and Marine bases in North Carolina. One center of quiet controversy since its opening has been the Sunny Point Army Terminal near Southport. In the following article the commanding officer makes it clear that Sunny Point is a paradise that was not lost to hunters and fishermen who want to visit the area.

SUNNY POINT Army Terminal is an absolutely wonderful place to hunt." "The place is working alive with game—it's a hunter's paradise." "Those lakes out there are just running over with bream, bass and jack."

These were statements that I heard when assigned to Sunny Point Army Terminal near Southport. After having a chance to sample the hunting and fishing at Sunny Point myself, I've concluded that some of the enthusiasm results from "the grass is greener on the other side." But—hunting and fishing opportunities do exist, and they are open to the general public.

One purpose of this article is to describe what is actually available at the terminal in the way of wildlife, and to disillusion those who think that we are located in the midst of the most bountiful supply of game and fish anywhere.

Another purpose is to correct the misunderstanding that still exists in some quarters regarding hunting and fishing privileges at the terminal.

What is the terminal?

Sunny Point Army Terminal is a U. S. Army Transportation Corps facility established to handle ammunition and other explosives for shipment. It was completed in late 1955, after experience had shown in two wars that high explosives should not be regularly handled through crowded seaports.

The terminal occupies about 15,000 acres, with nearly seven miles of shoreline on the Cape Fear River. Within the boundaries are dozens of small lakes and ponds, totalling 235 acres. Most of the land is covered with swampy bay vegetation.

The area near Southport was chosen for its present use for several reasons. A deep-water port suitable for ocean-going vessels was a primary requirement, and the Cape Fear River met this need. A minimum displacement of residents was desirable, and although the area has been settled for 200 years (the site of Old Brunswick Town is just up the river), very few people lived in the area concerned. Sources of reliable employees were convenient—Southport and Wilmington.

Since we handle ammunition and other explosives, *safety is one of our major products*. The requirements for land for docks, railroad yards and holding areas is relatively small, but we had to have a much larger "buffer" zone as a safety factor. A security fence encloses some 10,000 acres, and this land is owned by the federal government. Outside the security fence is a buffer zone under easement to the government. Control of hunting and fishing in the buffer zone is in the hands of the property owners.

Is hunting and fishing open to the public?

When plans for the terminal were announced, howls of indignation went up from local sportsmen who feared the loss of the ponds, marshes and forests. Some of these sportsmen are still unaware that hunting and fishing privileges are extended to anyone willing to observe our rules.

We have very stringent safety controls, both for the explosives that we handle and the people who come within the boundaries. On certain occasions, for security and safety reasons, hunting and fishing are prohibited altogether.

The aerial photograph below shows almost all of Sunny Point Army Terminal. At the bottom of the picture, with sunlight reflecting on the water, is the Cape Fear River. Parallel to the river are the three loading wharves where fishing is permitted except when loading operations are going on. Along the shore is a network of roads and railroads, with rail lines leading up to the main switching yard in the center of the picture. A branch line leads to the center right, where railroad holding yards are located. The holding yards, in the photo, resemble a series of V's. In the upper right is Orton Pond, outside the boundary of the terminal. Between Orton Pond and the rail holding yards are several bays of the type common to southeastern North Carolina, as described in the March 1959 issue of WILDLIFE. In the upper left is the administrative area, and along the left margin of the picture is a perimeter road. Dark areas between roads are mostly bay vegetation, swampy and often under water. Light areas are spoil banks and borrow pits from which fill material was obtained for building roads and railroad fills. Hunting is permitted on most of the area.

The basis for control of hunting and fishing at Sunny Point is the same as elsewhere in North Carolina. Federal, State, and local laws regarding hunting and fishing are enforced by our own security division. Valid licenses are required and must be shown when applying for a permit, except that no license is necessary to fish the Cape Fear River since it is commercial water here.

Without minimizing other laws affecting our sport, we have imposed some additional controls. Except during loading operations at the terminal, hunting is permitted six days a week during the season. One exception is deer hunting, which is

U. S. Army Photograph

Photos by Jim Lee

A variety of fishing is available at the three loading wharves at Sunny Point. When not in use, fishermen can try deep water beneath the docks where ocean-going vessels can tie up.

limited to two days a week—usually Monday and Friday. Permits, issued on a one-day basis, are required of everyone entering the Sunny Point area.

Permits are free, and are issued by the chief of the security division at his office, which is located just inside the main gate. Normally, applicants are required to apply for their permits at least one day in advance.

Hunting is controlled by the number of hunters issued permits. Hunters are assigned areas to hunt, and are expected to stay within those areas. The hunter must wear a bright-colored cap, preferably bright yellow, for identification.

Both nimrods and anglers must sign in at the Security Building upon entering, and sign out again at the end of the day. Records are gathered when sportsmen leave.

There are additional rules in force at Sunny Point for safety and security reasons. There are certain areas, for example, where no hunting or fishing can be permitted—rail yards, dock areas, and the administrative areas. There still remains about 7,000 acres of land that the public can safely use. The suitable areas are marked off and are pointed out to visitors.

What about the wildlife?

There seems to be a natural inclination among Americans that "the grass is always greener on the other side." I readily agree that there is game and fish within the Sunny Point Army Terminal, *but it is not by any stretch of the imagination the haven that some people imagine it to be.* In my opinion the hunting and fishing at Sunny Point is no better—and perhaps not as good—as the average countryside in Brunswick, New Hanover, or Columbus counties.

There are three or four ponds that contain bream, bass and jack, but most ponds have little or no fish life. There are deer on the area, but not "as thick as hair on a dog's back" as one might be led to believe. Doves, quail and waterfowl are about average. We have a generous population of fox, raccoon, possum, skunk, and various reptiles. There is no noticeable shortage of alligators, rattlesnakes or moccasins.

Although the truth may hurt, it is altogether possible that the green beyond the neighbor's fence is only a mirage. Sunny Point is not a sportsman's paradise. This statement is not intended to discourage you from trying your luck at Sunny Point, but rather to avoid disillusionment if you decide to see for yourself. The terminal is open to the public, and what game and fish are there are yours for the taking—as long as you observe the rules and regulations that we have mentioned.

Many ponds dot the area within Sunny Point Terminal. Some of the ponds are easily accessible from roads, and contain some bass, bluegills, and jack. Waterfowl use the ponds in winter.

fishing for fun

by Clayton Davis
Assistant County Agent, Haywood County

THE dry fly floated through the air, seemed to hesitate a moment, then settled gently on the water. There was a slight splash as the rainbow broke the water and hit the fly. I set the hook and played him out the lower end of the pool. After wetting my hands, I removed the hook and eased the fish back into the water.

But why release an eleven-inch trout? I was fishing in a sportsman's stream and only fish over sixteen inches could be kept. I was on Bradley Fork of the Oconaluftee River, deep in the heart of the Great Smoky Mountains. Bradley Fork joins the main portion of "Lufty" River six miles north of Cherokee. This "fishing for fun" stream is open to sportsmen all year long.

Last June a couple from Raleigh visited us. They had heard of trout fishing, but that was about all. While our wives were preparing the picnic meal (at the Smokemont Campground which borders the stream), Gerald and I decided to try our luck. I tied on a Royal Wulff fly for him and we started fishing.

Normally the water in this creek is so green with algae that the fish cannot be seen until it strikes. On this particular day, however, I saw a good fish in some knee-deep water.

"There's one every bit of a foot long," I told Gerald. The fly floated over his head several times; then I saw him coming with his mouth open.

"Jerk," I yelled, and the fight was on. Gerald was goggled-eyed as the trout jumped out of the water trying to get rid of the fly.

"Keep a tight line," I coached. I felt like kicking myself as I thought of the fine leader tipping on the line and a badly needed net, forgotten, which was lying in the back of our car.

Finally the fish was played down and landed. The girls were summoned and the fish was measured. Thirteen inches of fighting rainbow was turned back into the pool.

I marked the spot well in my mind, for that fish may be sixteen inches long by next summer. It could be Gerald who catches and keeps him. Poor boy! I'm afraid it has made an incurable fisherman of him.

"It's not the right time of year," a fisherman friend had told me. It was mid-winter, but I was getting the fever. The new fly rod my wife had given me for Christmas had never been tried out. It was a reasonably warm day, but there was still some snow on the ground.

As I eased into the lower end of the pool, a large black mink ran up the opposite side of the creek. There was a question in my mind as to whether a trout would hit a dry fly in mid-February. On about the fourth cast I got my answer. Before I left that pool, I had caught ten native rainbows that averaged between eight and nine inches. This pool was so close to the road I could have hit my car with a snowball if I had wanted to.

Another time there was ice hanging over the water. I noticed snowbirds busily feeding, as if warned by instinct of approaching bad weather. (A six-inch snow fell the next day). I wondered if trout would be feeding too, or if it was too cold. I tried an oversized deer-hair and within five minutes landed a fourteen-inch brown.

I have fished many of the trout streams of Western North Carolina, and at times I have become frustrated by the over-population of fishermen and the under-population of trout. Sometimes I've almost had to hide behind a tree to keep the flying fish hooks from hanging in my head. I've never had this trouble on Bradley Fork; although I have talked to other anglers who have fished this creek, I have never seen anyone fishing the stream other than friends I have taken there. This includes the week of July 4th, when the Smokemont Campground was closed because all campsites were filled.

Yet the fish abound, and the beauty of the handiwork of the Creator is on every side. The rules are simple: Use only artificial lures, and return all fish under sixteen inches. They call it "fishing for fun".

Trout water can be icy cold even in mid-summer, so leak-proof waders are suggested. A spill in these rushing waters could be uncomfortable, but shouldn't deter the man fishing for fun.

Photo by Jim Lee

Old-fashioned, but effective coop traps with figure "4" triggers were used in the violation. They were baited with grain.

When feeding birds touch the sensitive trigger, the trap falls and imprisons them. Here, confiscated quail were placed . . . .

Quail Trapping: A Serious Violation

by Jack Dermid

Illegal traps baited wildlife protectors as well as quail near Greensboro. By reporting violations, sportsmen can prevent such exploitation.

DURING the heavy snows last March, when sportsmen everywhere were concerned about the welfare of birds, a Guilford County resident used the hunger of quail to his advantage. He raked away the covering of snow and set two baited traps.

What the violator didn't know was that he was also baiting a wildlife protector.

A conscientious sportsman telephoned Wildlife Commissioner S. I. Stewart of Greensboro with the report that someone was trapping quail near town. Commissioner Stewart in turn alerted Protector Marshall Daniels.

After dark so that he would not be seen, Protector Daniels slipped into the vicinity of the traps and followed trails in the snow until he found the one that led to the traps. Daniels found them baited and set for action. Then came the task of watching the traps until the violator came to tend them and thus provide proof of his illegal operation.

Early the next morning, Protector Daniels returned with Wildlife Patrolmen A. E. Jones of Siler City. The two officers, each equipped with a walkie-talkie, watched the traps from separate vantage points. It was a long, cold wait.

But patience paid dividends, and late in the afternoon, a lone boy came to the empty traps and began taking them up.

The sudden appearance of Protectors Daniels and Jones startled the 15-year-old youngster into giving a complete confession. He readily admitted his role in helping another 14-year-old and an adult trap quail, implicated his accomplices, and told where 10 previously trapped quail were being held in a pen.

The protectors seized the illegal traps and went to a nearby residence to confront the other violators. The adult of the group admitted he had 10 wild quail but would not admit trapping them. The shy, wild birds were easy to separate from pen-raised birds, also being held in captivity, and were confiscated. The adult was charged with "unlawful possession of game birds"—the only valid charge possible since he was not apprehended tending the traps.

The two young boys were not prosecuted because of their age and because they did not realize the seriousness of what they were doing. They were the victims of circumstance, victims of the attitude of an adult who should have been teaching them to respect conservation laws instead of breaking them. Here was a job for education, not prosecution.

. . . in a trap for their picture before being released by Protector Marshall Daniels in the area where they were trapped.

The adult violator offered the feeble excuse that he was only going to use the trapped quail for breeding purposes, but he had to face the consequences of his violation. The court found him guilty as charged and provided a penalty of 30 days in jail and a $25 fine. The sentence was suspended providing the violator paid cost of court and did not violate any other game law for 12 months. In addition, he was ordered to obtain a legal permit for holding his pen-raised quail.

When the laws prescribing the manner of taking game were enacted . . . "No person shall take any game animals or game birds or migratory game birds from any automobile, or by aid of or with the use of any jacklight, or other artificial light, net, trap, snare, fire, salt lick or poison" . . . the legislature used wisdom and foresight to prevent game from being taken in wholesale quantities. The lawmakers were aware that the taking of game in quantity could lead to commercialization. And commercialization of our wildlife resources could lead to extermination.

After the trial, Protector Daniels released the confiscated quail in the area where they were trapped. They are nesting now, busy restocking the coverts for all people to enjoy. The ten quail likely represented the total breeding population in the particular area where they were trapped, and justice has insured that the wild call of the bobwhite will continue to be heard in this and other localities.

A WILDLIFE PROJECT FOR YOUNGSTERS

ALMOST every day, somewhere in North Carolina, adults find themselves as leaders of Boy Scouts, 4-H and FFA club members, or other groups of youngsters. Then comes the big problem: What sort of activity can be provided that will be both entertaining and educational?

When the time came to choose a program for the boys attending Bible School at Central Baptist Church near Wendell, sportsmen-leaders—Bay Nowell, R. L. Vaughan, George Marshburn, Clarence Richardson, and Ray Nowell—decided to build squirrel boxes.

They could not have made a better decision. The youngsters, ranging from 5 to 15 years of age, were delighted with the idea of making the houses themselves and learning more about wildlife. Rough lumber was purchased; a power saw was set up outside the church; and for two hours each evening, the class was a beehive of activity.

When school ended, the 23 boys had completed 33 squirrel boxes. Then came the fun of erecting them in the woods and watching squirrels move in.

These boys will have a greater appreciation for wildlife as the result of their work at Bible School, and other leaders can easily bring the same rewarding experience to their youngsters. The Wildlife Resources Commission will supply squirrel box plans free upon request.

Squirrels near Wendell have more nesting sites now. Building and erecting squirrel boxes is a fine project for youngsters.

Photos by Jack Dermid

Food for Rainbows

by Duane Raver

Photos by J. P. Brady

If the stocking of Kokanee salmon is successful, the big rainbows of Nathahala Lake will have more food and should grow larger and be more abundant.

IT is no secret that fish must have an abundant food supply in order to grow successfully. It may be news, however, to learn that not all waters are blessed with an adequate supply of food for some game fish. One of the jobs of fish management is to determine if such a shortage is present and to prescribe a remedy. The experimental stocking of Nantahala Reservoir in Macon County with a species of salmon is a trial of such a remedy.

To prevent injury to the fry, water temperature in the tanks was equalized to the temperature of the lake before stocking.

The mere mention of "salmon" conjures up all sorts of glowing scenes of 20, 30 or even 50 pound linebusting monsters. The salmon in the case at hand, however, is not the "catching kind" (although they are sometimes taken on hook and line); maximum size is about a pound, but it usually averages less than 14 ounces. The fish actually is a dwarfed, landlocked subspecies of the sockeye salmon of west coast waters. His name is the Kokanee or little red salmon. His size is just about right for a big rainbow to dispose of in one gulp. And that's his purpose in the ecology of Nantahala Reservoir: a food supply.

Over 100,000 Kokanee were stocked by the Wildlife Commission in this cold, deep reservoir early this spring. They feed on plankton, the tiny plants and animals that create the greenish cast to most all lake and pond waters. Thus they convert this natural "pasture" of the water into rainbow trout meat with just one "middle-man"—the Kokanee salmon himself. Usually the food chain starts with this microscopic plankton, which is eaten by tiny aquatic insects which are eaten by small fish, which in turn are consumed by large fish, and then finally end up on the rainbow's menu.

This little salmon does best in cold water (50° to 60°) and this means that he will live at about the same depth as the rainbow—a convenient arrangement for the trout.

It's now a "wait and see" situation at Nantahala. The rainbows are probably more anxious than we are!

More than 100,000 Kokanee fry, obtained from the Fish and Wildlife Service, were planted by protectors and fishery personnel. The species attains a maximum size of about a pound.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Commission Hunter Safety Program Gets Underway

The Wildlife Resources Commission began a hunter safety program last May when nine wildlife patrolmen and two education representatives attended a training short course at the Institute of Government in Chapel Hill. The course qualified the men as instructors in firearms safety, and they will now conduct classes to train wildlife protectors and other Commission personnel. The short course was conducted by Stanley Mate, Director of Training Programs, National Rifle Association.

After all participating Commission personnel are trained, they will embark upon a program to train a nucleus corps of volunteer sportsmen, who in turn will conduct training classes in hunting safety for interested adult and youth groups. The program is expected to reach a statewide level by September.

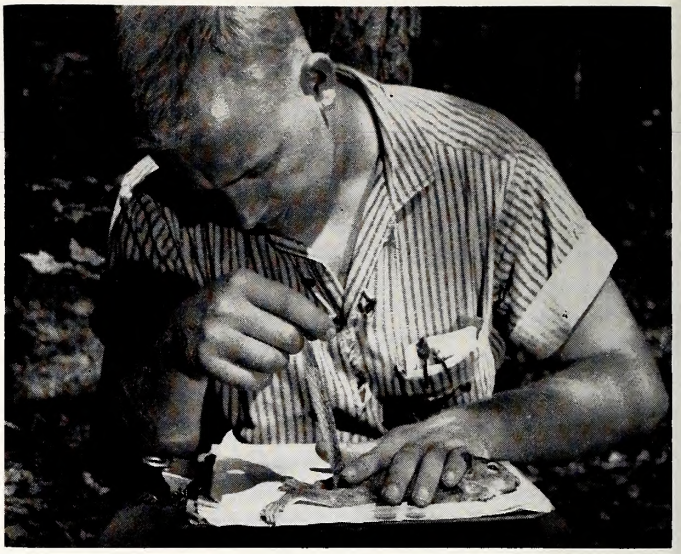
Three Tarheels Receive National Recognition

Three North Carolinians received Awards of Merit from the American Association for Conservation Information for their outstanding activities in conservation. The awards were announced at the Association's convention in Miami, Florida, recently.

Phil Ellis, Radio Station WPTF, Raleigh, received recognition for his contributions to conservation education through the medium of radio; Heath Thomas, Salisbury Post, Salisbury, for writing outstanding outdoor columns; Howard W. Robbins, leader of the Junior Outdoors Club, Greensboro, for outstanding conservation work with youth. All three made notable contributions in furthering a better public understanding of accomplishments and problems in the conservation field.

Motorboat Registration Passes 30,000 Mark

Since the Motorboat Safety Act became effective on January 1, over 30,000 boat owners have applied for registration numbers, which are now required for all boats of over 10 H. P. All persons with boats subject to registration who have not obtained their numbers are urged to do so before taking to the water. Application forms are available from boat dealers and fishing license agents.



State College graduate student Robert Soots measures length of six-week-old squirrel. Soots has recorded scientific data on hundreds of litters, obtaining many basic life history facts.

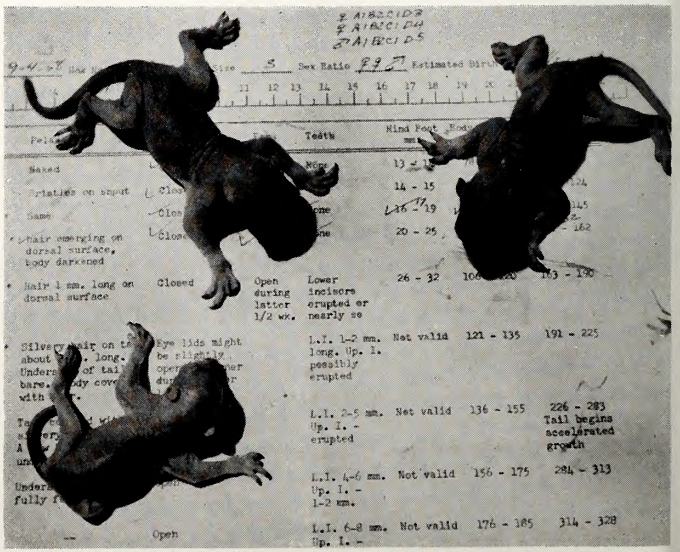
Operation

Photo Fe

ALTHOUGH the erection of squirrel nesting boxes has been a practice for many years, biologists could not say how effective the boxes were in producing greater squirrel populations or if they were superior to natural hollows or leaf nests. Use of the boxes was based on the simple fact that squirrels would occupy them.

In order to determine the true quantitative effect of boxes on squirrel populations, the Wildlife Resources Commission in cooperation with North Carolina State College began a long-term study in 1956. Graduate students in wildlife management are doing the research and writing theses on their findings. Currently, Robert F. Soots of Midland is project leader.

Litter of two-week-old nestlings pose on data recording sheet. Their eyes are closed, and hair is just beginning to appear. Most young come during two periods: March-April and August.



Harmless toe clipping is used to mark nestlings. The technique enables investigators to follow growth rates, movements, and longevity of individuals. Adults are marked with ear tags.

Soots closes entrance hole with hand while peering in to see if adult is at home. Removing adults from boxes for checking requires tricky maneuvering with burlap bag to prevent escape.

uirrel Box

ıck Dermid

The study has not been completed, but tentative data indicate that woodlands with boxes produce more squirrels than similar woodlands without them. Besides measuring the value of boxes, the research is recording the life history of the gray squirrel in North Carolina.

The findings will be of tremendous value to biologists in developing sound management plans, and sportsmen throughout the State will eventually benefit through better hunting.

During the past two years, Soots has kept close scrutiny on the 400 nesting boxes erected in Umstead Park near Raleigh and the squirrels that use them. These photographs will take you on a field trip with him.

Arnold Soots (right) helps his brother check adult. Care is necessary to avoid bites. The study also involves extensive live-trapping to census population and tab movements of adults.

Arnold Soots' pocket provides snug elevator for returning six-week-old youngsters (shown also on left) to nest. If female is home when box is checked, she will move family elsewhere.

What is it?

fool-proof fishing

by Duane Raver

SHOULD anyone describe to you a fishing method that is sure-fire, fool-proof, never-failing, always productive—listen politely and then forget it; "they ain't no such critter." Right off the bat, let's make it clear that we're speaking of the mechanics of casting, use of tackle, and presentation of the lure to friend fish, rather than bring-home-the-limit-every-time stuff. Actually you've no doubt discovered that the easier it is to use the tackle, the better the catch; the simpler the technique is to master, the fuller the stringer.

Just what is the easiest fishing method—the one with the least number of tangles, bad casts, equipment failures and other headaches? Spinning? Several summers back a couple of better-than-average anglers drifted noislessly on a glass-surfaced lake, engulfed in a black-velvet July night. The only sounds disturbing this peaceful scene were the soft flutter of monofilament lines peeling off open-faced spinning reels, the gentle splat of quarter-ounce lures meeting the placid water surface and an occasional bullfrog tuning up.

Without warning, the flutter of one of the lines stopped abrubtly and one of the anglers sounded off. A "tangle". A loop of line shot off the spool unannounced and the rest scattered hopelessly.

The other fisherman continued his casting and issued condolences. The tangle was even worse under the gleam of the flashlight, and the only practical thing to do was snap the line, throw away the snarl and hope for the best. This remedy was barely underway when the entire procedure was repeated by the second angler! His unseen smile vanished as he, too, picked away at the mess.

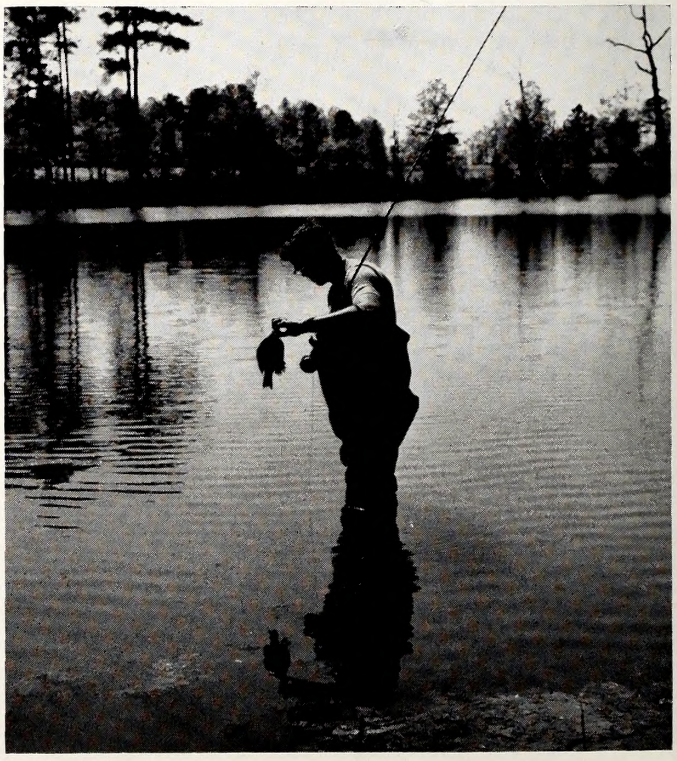
Now, this is an isolated case, but not an infrequent one even with good spinning tackle and proficient users. And the whole point of bringing it up is to help substantiate this statement: spinning is *not* the most fool-proof fishing method.

It's fly fishing. To some this will come as no great surprise; to others it's a revelation met with disbelief. Fishing—any sort of fishing—is quite a personal and individual thing. It's often made up of opinions, life-long mannerisms, and—well, little personal touches. So any dissertation on the merit of one type of angling over any other methods is soon reduced to individual opinion. But perhaps we can advance some genuine reasons why it is felt that fly fishing is the nearest to fool-proof angling that can be practically achieved.

Let's start with the best fly tackle that we can afford. This in itself will further insure effortless casting, minimize difficulties and eliminate many headaches experienced by the beginner. The rod probably will be fiber glass, 7½ to 8½ feet long, with a "dry-fly" (you may never cast a dry-fly with it) action.

The fisherman switching from bamboo to glass will be a little concerned over the heavy appearance of the glass rods—particularly the diameter of the stick near the grip. A bamboo rod of this same diameter would be unheard of, and uncomfortably heavy in weight. The glass rods need this diameter to achieve the best action—the weight is less, however, than comparable-actioned bamboo rods. The newer glass rods are being built to fit fishing needs; they go a long way in helping the angler to faultless casting.

Photo by Jim Lee



For maximum enjoyment your fishing method should be slow and easy. Fly fishing offers peace and quiet plus plenty of sport and large catches. Who could ask for more angling fun?

Sticking to our aim of fool-proof fishing, we'll select a single-action fly reel. Now don't jump to the conclusion that an automatic reel is fraught with bugs and a constant source of frustration. Not so. From a service and cost angle, you'll do better with a good, sturdy single-action reel over the automatic.

The real secret to good fly casting may well be the line. We hear a great deal about "balance" in fly tackle. This doesn't mean fitting an 8-ounce reel to a 6-ounce rod (although the "feel" of an outfit may be influenced by this), but rather putting the right weight line with the proper rod. The best rod and line in the world will cast miserably if they're mis-matched.

The better manufacturers list the proper line weights for each of their rods; these suggestions should be followed. Generally, the heavier, longer and stiffer a fly-rod is, the heavier the line required to bring out the action.

Photo by Jim Lee

In case you haven't noticed, the angler in this sunlit scene is using a spinning rod. This tackle is extremely versatile, but may fall short of being the answer to fool-proof fishing.

Some line makers are using "light, medium, and heavy" for their shooting lines (torpedo head) and these are good designations and are prescribed for various rod lengths. The "three diameter lines" HCF, HDG, etc. listed as mentioned in light, medium, heavy weights, made fly casting much easier than with level lines. True, you pay for it, but the difference is worth it.

Cortland Line Company has gone one big step further in fool-proofing fly casting by marking its 333 "Shooter Tapers" with a colored grip point to be held in the left hand for false casting and shooting the line. It may sound like a gadget, but it works and takes much of the guess work out of timing in fly casting. What more could you ask for fool-proof fishing?

No other angling method puts you in command of a fish as does fly fishing. The long rod absorbs the shock of sudden runs, you have line ready to pay out if necessary, you "feel" the fish, you tire him. You are in control. Brush, weeds, big fish? Well, we all lose a few fish!

It's interesting to see a person hold a fly-rod for the first time. But it's positively amazing to see this beginner casting—not far, true—within 10 minutes. And catching fish right off the bat. Short, accurate casts 'most always produce more fish than long, off-the-target shots. The new fly-rodder can stick to 20- to 30-footers and pick up fish.

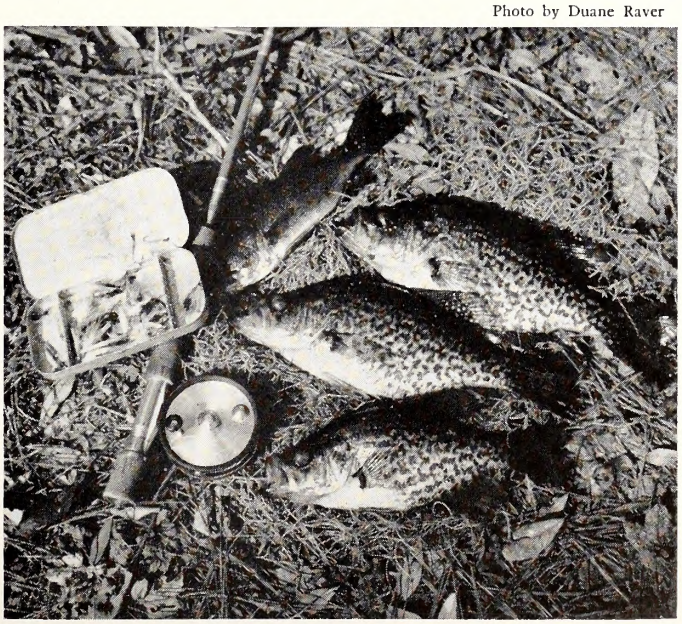
The light-weight lure soon is dropped delicately (try this with just about any spinning or casting lures) and with a little care in approaching your spot, distance casting becomes less important.

Depth control in fishing a particular lure often takes on extreme importance. A slowly sinking wet fly can be fished with ease at any speed at almost any depth desired. And then you have a wide choice of lures: dry flies in a half-a-dozen sizes, wet flies, nymphs, popping bugs, streamers, spinners, and others.

Fool-proof fishing? Well, maybe not quite; but mighty near it. It's pleasant fishing, one in which you set the speed. Don't forsake casting, spinning, or the cane pole, but fly fishing may be the answer to trouble-free angling.

One of the best arguments for fly fishing is a catch like this. Do not forsake casting, spinning, or the cane pole, but for easy handling, fine sport, and fish for supper, try the fly rod.

Photo by Duane Raver



The Skipper

Conducted by Duane Raver

- Weather
- Read It
- Water Safety
- Club Membership
- Where's the Anchor?
- Boat Trailer Laws

WEATHER—WISE OR OTHERWISE?

HOW many times have you heard:

Red sunrise in the morning, sailor take warning.
Red sunset at night, sailor's delight.

Well, forecasting weather is really not that simple but that verse points up one thing, and that is, weather is in constant movement. Like an untrained boxer, weather will often telegraph its punch.

Nature will provide exceptions, but in a vast majority of incidents weather structures will run true to form and may be read with your weather-eye.

A once mysterious word, but now in common use, is the term *front*. A *front* developes when two different air masses, each trying to retain its identity, meet. The colder air, being heavier, will slide under the warm air and lift it up. The noticeable boundary between these two masses is called a *front*.

Keep your eye skyward for approaching storms. If clouds are building up, don't wait until it is too late to head your boat to safety, for bad weather will not wait until you reach cover.

A cold front is generally accompanied by strong, shifting surface winds, thunderstorms, and squalls. *Altocumulus* clouds, or "dappled sky", a sign in themselves, may precede a cold front by as much as 300 miles. A warm front normally brings less violent winds, but the sky will be heavy with great masses of low clouds. There will be rain, maybe fog, and poor visibility. The foul weather accompanying a warm front will usually last a long while.

Local weather predictions are reliable up to about 12 hours because clues rarely give us much more warning than that. Remember, weather is always on the move and moves normally at 25 miles per hour. Thus, what is 50 or 200 miles to the westward now will be on us in 2 to 8 hours.

A clue by itself has little meaning, but clues put together will make interesting reading. Using a barometer and the wind direction we can come up with broad general "weather predicting" rules.

1. **Wind in the east, barometer falling: foul weather approaching.**
2. **Wind shifting to westward, barometer rising: clearing and fair**
3. **Steady, slowly rising barometer: settled weather**
4. **Steady, slowly falling barometer: unsettled or rainy**
5. **Rapidly rising barometer: clear and windy**
6. **Rapidly falling barometer: storm coming**

Check these rules, though, against local experiences. On our coast, local west winds are usually fair, local east winds wet and cold.

Looking at the sky may give us additional indication of what weather is brewing.

1. **Bright blue sky usually means fair weather.**
2. **Sky gray and dull at sunset, foul weather tomorrow.**
3. **Cloudless sky at sunset, fair and cooler tomorrow.**
4. **Ring around the moon, storm on the way.**
5. **Weak, washed-out looking sun, probably rain.**
6. **Sun rising in a gray horizon, a good day ahead.**

Few persons are more weather conscious, or should be, than a boat operator. He needs to de-

velop a habit of reading the sky, his barometer, cloud formations, and knowing his local weather peculiarities.

Boating is fun, but not in bad weather; every boat operator needs to know what to do if bad weather overtakes him. In boating, experience is not always the best teacher.

On seeing thunderheads piling up in the sky and dark clouds forming, stay ashore. If on the water, head for shelter in a hurry. If you're caught in a sudden squall have the other persons in the boat sit on the floor boards, head your craft into the wind and waves at slow speed, just enough to hold your course. There is no need to take chances in rough water and rough weather—there are very few old, bold skippers—*Bill Hamnett.*

The Wildlife Resources Commission sends some important reading to each boat owner along with the boat's certificate of number. For safer sport afloat, read it and remember it.

READ IT AND HEED IT.

The little windowed envelope that brought your boat certificate of number also contained information which could keep you out of trouble. One of the worst possible excuses after being confronted with a law violation is "I didn't know." And this is certainly true with the Boating Safety Act. By now every boatman should be familiar with it. Study the pamphlets sent to you. The "North Carolina Motorboat Owners Guide" and the Coast Guard's CG 290, "Pleasure Craft" are required reading and heeding for the thoughtful skipper.

A life preserver is important for all persons in a motorboat. Water safety is everybody's responsibility, so be prepared in case of an emergency. The careless may not get second chance.

WATER SAFETY: WHO NEEDS IT?

WITH summer stretching lazily before us, the lure of the water is mighty strong. Some of us have already paddled across the local pond or even circled the town reservior with the family runabout. Boating is booming. But water safety must extend beyond the skipper and his boat; it must be practiced by swimmers, waders, and even the casual toe-dippers.

A refreshing swim in the farm pond can be the end of a perfect day if done safely. All swimmers should know the water—any deep holes, stumps or other hazards. The pond should be equipped with strategically located ring buoys with attached lengths of rope. If these devices are lacking, at least provide several ten or fifteen foot, sturdy poles for rescue operations.

Be informed about life-saving methods; even if you can't swim, you *can* save lives. If you're the swimmer or wader, don't make it necessary to be saved; be careful. Swim with a friend, or have someone nearby on the bank. Make safety and caution your water companions.

BOAT CLUB MEMBERSHIP

IT seems like we all have a greater tendency to exercise more caution when the "crowd" does it. Membership in an organized boat club isn't necessarily assurance that our boating will be safer, but we believe it will help. Often these clubs provide courses of study in boat handling and seamanship as well as participation in cruises and other boating activities.

Group participation helps in the exchange of ideas whether on the latest variable pitch propellor or storage of safety equipment. Check your locality for clubs of this sort; if you have a club underway, let us know about it and some of its activities.

WHERE'S THE ANCHOR?

EVERY boatman at one time or another needs an anchor. What size and type of anchor you need depends on the size of your boat and what sort of bottom you generally will anchor in—rocky, muddy, sandy, etc.

No matter what type you have, according to the Evinrude Boating Foundation, be sure to have it made up with the line secured to it ready to use when you are cruising or making long runs. A short stockless anchor might serve the purpose, or one of the many lightweight, patent hooks, some of which hold better than others in different kinds of bottom.

Another consideration is the safe ratio of length of anchor line to depth of water. In moderate weather, this ratio is normally six-to-one. In other words, if you anchor in ten feet of water, sixty feet of line is the proper scope, although if your boat is light and there is neither breeze nor current, half that would do for a short time. A six-to-one ratio, however, is better for overnight anchoring or if the boat is to be left unattended.

Here are a few good things to remember when anchoring: examine the anchor first and be sure that the line is attached properly and that the other end is secured to the boat; you don't have to play shot-putter with the anchor, just lower it alongside the boat; you should have the anchor line coiled clear for running, with no kinks or knots in it; never stand on or in the coil when letting the anchor go unless you want to go with it.

BOAT TRAILER LAWS

by Bill Crowell

Department of Motor Vehicles

AS the sun and fun season gets underway in North Carolina, let's not have any boating enthusiasts moaning, "If only I'd known. . ." The point is this, mostly: sportsmen and vacationers heading coastward (or to any handy lake) will have to keep a sharper eye on their speedometer, for new speed regulations are now in effect governing towed vehicles. Avoiding technicalities, what the law boils down to is simply that cars pulling boat trailers are now limited to 45 miles an hour.

Last season you could hit 55 with no trouble from highway patrolmen. It'll be the same way this summer *if* you will just slice a neat ten miles an hour off your old highway speed and hold her to 45 while towing your boat. Chances are, according to traffic experts, you'll get the hull wet about as quick as before anyhow.

A lot depends on your boat trailer. Is it legally and safely equipped and operated? Getting to your favorite water without trouble is just as important as enjoying your cruise safely.

Maybe some boat owners aren't completely familiar with the rules covering trailers. Here then is a run down of some of the more pertinent ones:

Hitches. Not much to report here. But common sense would prescribe a sturdy, well-made hitch of standard design. The law says the hitch should be firmly attached to the rear of the vehicle, should tow the trailer in a straight line and not "snake" while underway. A strong safety chain anchored to the towing vehicle may save you a messy time should your hitch somehow work loose. Towing hitches and accessory equipment should be maintained in good condition—obviously.

The state's top policeman, Col. David T. Lambert of the Highway Patrol, has this to say about trailer hitches:

"The vehicle's license plate must not—repeat, must not—be obscured by a trailer hitch."

The law is firmly on the Colonel's side here, for the Motor Vehicle Manual prescribes penalties for car owners who wilfully obscure their tag.

Lights. Boat trailers licensed for not more than 2500 pounds gross can comply with state lighting laws rather simply. All that is required is the display of two red reflectors on the rear end. They should be not less than four inches in diameter and clearly visible for at least 500 feet. If your car's direction signals are obscured, be sure to give the correct hand signal before making a turn.

Larger trailers (over 2500 pounds) must be equipped with a standard rear light. That is, the kind that illuminates your license tag with a white light and shows a red light to the rear. Also, if your trailer and boat exceeds 80 inches in overall width, then you must add clearance lights, too.

Red reflectors, attached to the transom of your craft are not required, although many owners find them a simple and inexpensive extra precaution.

Nothing else in the way of special equipment not provided by the trailer manufacturer is required to operate it legally in North Carolina.

—North Carolina State Parks

Holiday Havens

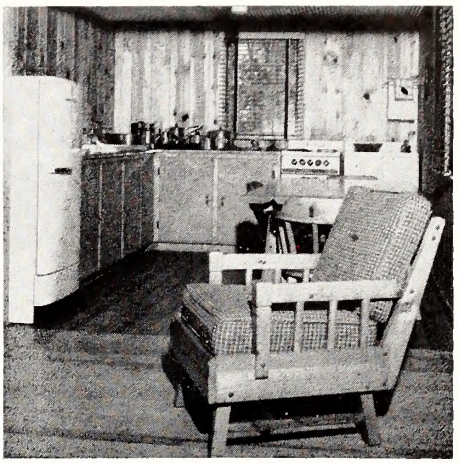
by Jim Lee

Photos from State Advertising Division

Looking for a place to relax for a few days? There's a North Carolina state park somewhere near you, and a variety of recreational facilities are there for you to enjoy. Mountains, seashore, Piedmont—take your pick of the parks.

NORTH CAROLINA'S boast of being the Variety Vacationland is amply supported by the opportunities at 11 state parks. Here you can swim, fish, hike, or just take it easy for a spell. There's something for the whole family.

Located at points of scenic interest, all of the parks provide places to observe the plants and animals of the area. Nature walks are available at most, with guides during the summer months. Fishing is permitted, but no hunting.

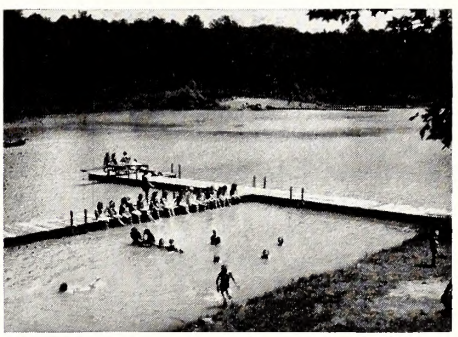


Vacation cabins can be rented at two state parks, Morrow Mountain and Hanging Rock. Cabins are equipped for six persons.

Vacation cabins, tent camping and group camps beckon you to stay a while. Fees are nominal, and accommodations are excellent. If you plan a trip, write the superintendent of the park you plan to visit for full information.

NAME OF STATE PARK	LOCATION	HIGHWAYS	SCENIC	RECREATIONAL	HISTORIC	PICNICKING	REFRESHMENT STANDS	SWIMMING	VACATION CABINS	TENT CAMPING	TRAILER CAMPING	ORGANIZED CAMPS	RESTAURANT	BOATING	FISHING	HIKING	NATURE STUDY	MUSEUM	RECREATION LODGE	LOOKOUT TOWER	HISTORIC STRUCTURES	ACRES	ESTAB.
CLIFFS OF THE NEUSE	14 MILES SE OF GOLDSBORO	US 70 NC 55 & 111	●	●		●	●	●		P				●	●	●	●	●				365	1945
FORT MACON	2 MILES E OF ATLANTIC BEACH	US 70 & STATE ROAD	●	●	●	●	●	●							●	●	●	●			●	390	1924
HANGING ROCK	32 MILES N OF WINSTON-SALEM	NC 89 & 66	●	●		●	●	●	●	●	●			●	●	●	●			●		3865	1935
JONES LAKE	4 MILES N OF ELIZABETHTOWN	NC 242	●	●		●	●	●		●	●			●	●	●	●					2000	1939
MORROW MOUNTAIN	7 MILES E OF ALBEMARLE	NC 27 & 73 NC 740	●	●		●	●	●	●	●	●			●	●	●	●	●	●		●	4135	1935
MOUNT JEFFERSON	1 MILE SW OF JEFFERSON	US 221	●	●		●										●	●					474	1956
MOUNT MITCHELL	33 MILES NE OF ASHEVILLE	BLUERIDGE PARKWAY	●	●		●	●			●			●			●	●	●	●	●		1224	1915
PETTIGREW	9 MILES S OF CREswELL	US 64 & STATE ROAD	●	●	●	P								●	●	●	●				●	16,828	1939
REEDY CREEK	10 MILES NW OF RALEIGH	US 70A & 1 NC 54	●	●		●				P		●			●	●	●					1234	1943
SINGLETARY LAKE	10 MILES SE OF ELIZABETHTOWN	NC 53		●								●		●	●	●						1287	1939
WILLIAM B. UMSTEAD	12 MILES NW OF RALEIGH	US 70	●	●		●				●	●	●		●	●	●	●					3886	1943

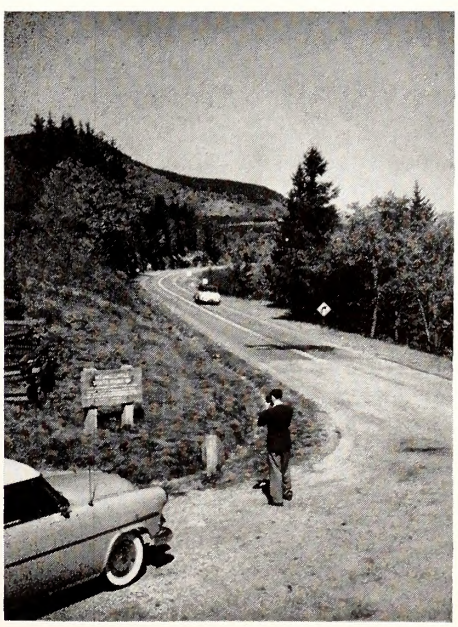
LEGEND: ● FACILITIES PROVIDED; P PERMITTED BUT NO SPECIAL FACILITIES PROVIDED

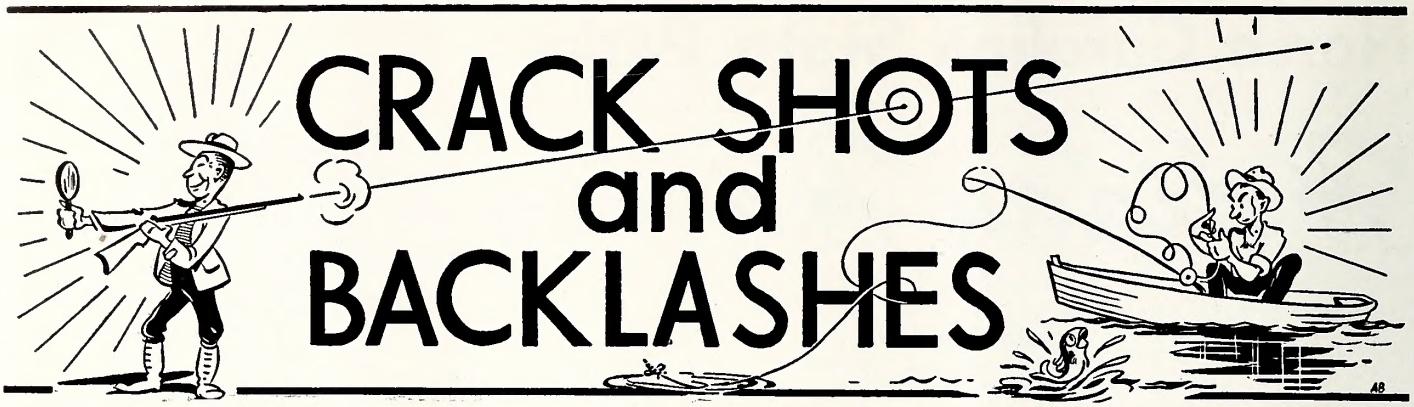


Group camps such as William B. Umstead provide places for organized camping. Here children are taught to swim.

Fort Macon, near Morehead City, features a historic fort, protected fishing area, and a wide strand for beachcombing and fishing. A swimming area at Fort Macon has a bathhouse and trained life guards, plus facilities for picknicking at the beach.

Mount Mitchell encloses the top of the highest summit in Eastern North America, and features a mile-high restaurant.





DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

On July 1 North Carolina's boating safety act is six months old. The law went into effect on January 1. With one of the coldest and snowiest winters on record, there was very little boating activity on inland waters until the first warm weather on the April 1 weekend.

How well has the safety law measured up in effect and in public opinion? Any new law requiring the payment of fees and the enforcement of safety rules is difficult to put into effect. The mechanics of handling boat registration fees, processing applications and issuing boat registration certificates was well under way within a month, and the system has been operating efficiently ever since.

Realizing that a new law requires a great deal of public education, the Wildlife Commission undertook a program of education as soon as the Act was passed by the 1959 legislature. Copies of the law were printed and distributed and the August, 1959 issue of this magazine carried the full text of the law. About 200,000 copies of a boating law information booklet were printed and distributed. A number of news stories were sent out to newspapers. It should be pointed out that the Press has been wonderfully cooperative in publishing information about the law; the Commission is grateful for this.

Meanwhile, other than for flagrant violations of the rules of boating safety, such as careless and reckless operation or operating a boat "under the influence," wildlife protectors made few if any arrests for violations of other provisions of the law. Between January 1 and April 1 personnel of the Wildlife Protection Division held a series of 97 courtesy boat inspections from one end of the state to the other. These were designed to give boat owners every opportunity to have their boats properly equipped with required safety devices.

Beginning April 1 citations were given to persons operating boats without numbers or evidence of having applied for the necessary numbers and certificates of registration. An unofficial grace period was over.

There has been much misunderstanding regarding a boating safety law "crackdown." There was no crackdown as such. Wildlife protectors were instructed to enforce the provisions of the law in connection with their normal fishing season activities, incidental to checking fishing licenses.

By and large, the Boating Safety Act of 1959 has met with the approval of most people. It will continue to meet with general approval as long as it is enforced impartially and judiciously, and as long as emphasis continues to be placed on boating safety education. The phrase "Courtesy, Caution and Common Sense" applies equally to the man affected by the boating safety law and the man who enforces it.

* * * *

When a man, with the backing of the agency he works for, gets a letter like this he cannot help thinking that a life dedicated to sound fish management may be worthwhile:

J. H. CORNELL, CHIEF, FISH DIVISION: I wish to sincerely thank you for your kind letter of March 17 in reply to mine regarding the postponement of the opening of the trout season. It is indeed gratifying to know that the commission saw fit to reverse iself and leave the opening date on April 2 and I sincerely believe that from the public relations point of view, the wise thing has been done.

May I take this opportunity to express my appreciation to you and your associates for the outstanding job which you are doing on behalf of the fishermen in our State. May I also say that if sometimes in the future, changes in the regulations must be made for biological reasons rather than purely public relations, you will have my wholehearted support. I think we should hold fast to our principles of enlightened fish management and let the chips fall where they may, regardless of how some sportsman may scream. Only by following such a policy can we continue the fine progress which has been made to date.

May I also take this opportunity to applaud the recent action taken in which two streams were set aside for fishing with only flies and with limits as to size of the trout creel. I look forward to fishing these streams for fun and will be quite

"I'd prefer seeing your fishing equipment!"

interested in the results of this experiment. F. F. WILLINGHAM, WINSTON-SALEM

Pollution Control Critic All Wet?

DEAR SIRS: Having fished both North Carolina and Ohio waters, I am convinced that Mr. Gerald Ishording is all wet. Both states are in bad need of some strong "pollution control" legislation. Needless to say, most large streams cross state lines—the Ohio is a good example. Therefore, this seems to be a job for the Federal and State governments. JOHN HENRY, CHAIRMAN, STREAM POLLUTION AND SANITATION COMMITTEE, ROWAN WILDLIFE ASSOCIATION

We agree that pollution control is a job for both state and federal governments. But it goes further than that—right down to the community and the individual.

Note From Lucretia

DEAR SIRS: Thank you for your information about moss growing on the north sides of trees. Please return the type I sent as soon as you locate the north side of it. I have two more questions: I have heard about the Kee-kee bird that is supposed to live up here in Alaska, but have not been able to find one. Secondly, do parrots really know what they are talking about? LUCRETIA PLYMPH, BARROW POINT, ALASKA.

Dear Lucretia: Nice to hear from you again. The Kee-kee bird was first reported by GI's serving on the Alaska Coast in World War II. They are recorded as having flown about in circles crying, "Kee-keee—keee—keeriminy, but it's COLD!"

As to your second question, most ornithologists agree that parrots, like editors, seldom know what they are talking about. —Ed.

More On The Mexican Quail

DEAR SIRS: I was very surprised to read the letter of Mr. Whitley of Mt. Olive and your answer in regard to native quail being mixed with the Mexican variety.

I have been shooting and "shooting at" quail for around 50 years and I believe anyone who grew up on our "old native Bob" will agree with me that our present day sparrow-size quail are very different from the original.

They vary considerably also in flight being much faster and more erratic in flight. Color and voice are the same but that is all.

You will have to go much farther back than 20 years to fix the date when most Mexican stock was brought into this State. The first I knew to be brought into Stanly County was around 1927. The Mexican, though smaller, is more aggressive, somewhat like game chickens, and amalgamation was swift and sure.

I lived in Richmond County during the Thirties and friends coming in from other sections were amazed at the size of the quail there at that time; but I am told its the same story there now.

I think you will find the old quail hunter will agree with me. It may be for the best, for being slow and less adept at caring for himself, "Old Bob" might not have survived. RAY L. BLALOCK, NEW LONDON

We'd like to hear further comment on this.—Ed.

Comment From A Deer Hunter

FRANK B. BARICK, CHIEF, GAME DIVISION: I just finished reading the magazine Wildlife for March, and appreciate the helpful information derived from it, especially from this issue showing the 12-year record of deer hunts. I think you people are doing a magnificent job and are absolutely right on all issues stated. Most of all, that we could still take a few more doe and still keep up a good herd. I have for the last 12 years hunted in and around Daniel Boone Refuge and find an abundance of deer although I find that where there are plenty of deer in one section, the next year they are scarce but in the meantime where they were scarce this year there are plenty the next. I see a lot of sportsmen that think the herds have depleted just because they are not in the same area year after year.

I know sportsmen that, like myself, purchase a hunting license every year and hunt deer that believe as you and I that we wouldn't be hurt by taking a few doe each year in order to keep a healthy herd. I am perfectly willing to go along with the knowledge of the Wildlife Resources Commission and true sportsmen. LEE SMITH, HICKORY

DEAR MR. SMITH: Thank you for your letter of March 12 concerning our article on 12 years of deer hunting records on the wildlife management areas. We appreciate very much your support of our opinion that "doe" hunts could be expanded in the interest of the deer herd and deer hunting. In order to prevent an excessive harvest next fall, our recommendations for the coming season will be prepared after we have had an opportunity to assess what damage, if any, was inflicted on the herds by the heavy snow this winter. FRANK B. BARICK.

Photo by Edwin C. Park

Well, everybody can't win!

"I heard the trout are running pretty good at New River . . ."

Wants Longer Waterfowl Hours

DEAR SIRS: I wish to protest the 4:00 p.m. closing hour for hunting at Swan Quarter, North Carolina. When a person takes the money and time to come there for hunting it seems unfair to have to quit so early. I would like to think your Commission would make an effort to have this changed. GLEN L. ROBERTS, TOLEDO, OHIO

The 4:00 p.m. closing hour was set up by legislative act in Hyde County, and can be changed only by legislative action.

Request From A Mother

DEAR SIRS: Have just been looking through your March issue, and plan to save it for the pictures, especially the bluebird painting.

We have five children, and in our school the fifth grade always makes a notebook on North Carolina. I've helped two of my children with theirs, and have three more to go. They always want pictures of the cardinal, dogwood, and other things pertaining to our state.

As I looked at the bluebird picture, which is lovely, I thought how wonderful it would be if you would sometime have a colored picture of the cardinal, in a dogwood tree, and to be almost unbelievably perfect, show the Capitol, or at least the state flag, in the background.

Of course, this might not be at all practical for you, and if not, please excuse me—I just thought you might possibly consider it. I believe it would be a hit with lots of school children, as well as interested parents.

I've never written an editor before and I hope you won't mind this. I thought this idea of mine might be worthwhile. MRS. ROBERT L. STOVER, SILER CITY

Such a cover was done by News and Observer artist Bill Ballard for the April, 1956 issue. We have only two copies left and can't spare them. Won't someone please send Mrs. Stover a copy so she can frame it?—Ed.

Pheasant Adopts Airplane

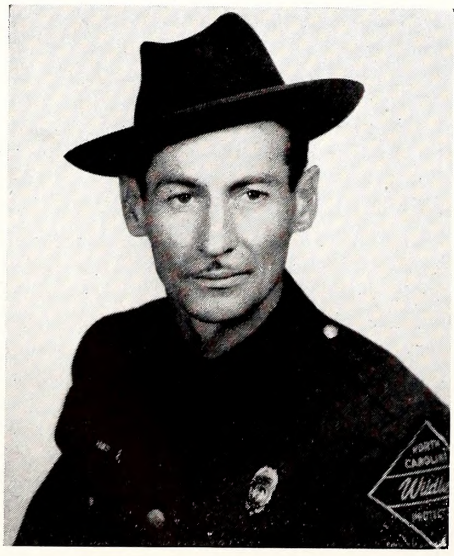
A cock pheasant in New Hampshire has "adopted" a manmade bird, a red-and-cream airplane, the National Wildlife Federation is advised. Every time the plane's motors are started, the pheasant emerges from nearby cover and takes up a position beneath the left wing. As the plane taxis down the runway, the bird follows until the craft is airborne. Coming in, the plane is met by the bird, which escorts it to the parking ramp.

Progress in Fish Management

An important influence on sport fishing throughout the country has been the Sport Fishing Institute, Washington, D.C. In a recent questionnaire, the Institute requested information on developments in North Carolina's fish management program. Following is the Wildlife Resources Commission's answer to the Institute: MR. R. H. STROUD, EXECUTIVE VICE PRESIDENT, SPORT FISHING INSTITUTE WASHINGTON 5, D. C.: This is in reply to your inquiry concerning the activities of the Fish Division of the North Carolina Wildlife Resources Commission. We are not reporting on a "lake building program" since such activities are not a part of our present operations. Since North Carolina is fourth in the United States in the amount of inland water, our Commission has believed it to be more desirable to manage the resource we have rather than attempting to increase it.

Neither do we carry on any major program devoted to the "rehabilitation of fish lakes." Actually, our biologists provide a very considerable amount of time and assistance to the owners of "farm ponds," but these ponds are not necessarily fishing waters. Because so many of our cities obtain their drinking water supplies from rivers or from reservoirs, it has proved to be impractical to attempt chemical treatment of fish populations because of the off-flavors imparted to the water supplies. Of the lakes which constitute a large part of the public waters, reclamation by drainage was as impractical in most cases. Some of the lakes are municipal water supplies, but most of them are hydroelectric power developments. In either case, the operators of the reservoirs do not

PROTECTOR OF THE MONTH



Cornelius Henry Tripp

Cornelius Henry Tripp was born on May 20, 1922 in Durham, and attended schol there. He is a veteran of World War II, with three years service in the Asiatic Pacific Theater, and is the holder of three bronze stars.

Mr. Tripp was formerly employed with the Department of Conservation and Development, Division of Forestry, as a ranger. He attended the Wildlife Protectors' Pre-Service Training School in 1955, as well as the 1958, 1959, and 1960 In-Service Training Schools for Wildlife Protectors. He was assigned to Sampson County on October 1, 1956, and was transferred to Harnett County on September 1, 1957.

Mr. Tripp is a member of the Southeastern Association of Game and Fish Commissioners, and the National Police Officers' Association of America. His address is Route 1, Lillington.

ENFORCEMENT RECORD FOR MARCH

Person checked	6,220
Total prosecutions	142
Total convictions	134
Total cases not guilty	7
Total cases nol prossed	1
Total fines collected	$382.00
Total cost collected	$799.25

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

Fawns belong in the woods where they can grow up wild as nature intended. Besides being a game law violation to steal fawns from their mothers, it puts an unnecessary burden on protectors who have to care for them until they can be taken to a refuge. Here, Protector Milton Higgins of Burnsville feeds a confiscated fawn.

take kindly to any suggestions of complete drainage. For these reasons, it appears that the major part of your questionnaire has no relationship to our activities.

In 1952, before they became popular, we began a state-wide program of building fishing access areas. This program continues at a rate of about five areas per year. This work is done entirely with State funds because we found the D-J regulations to be incompatible with the State laws pertaining to land purchase and development.

The fishing access areas are built entirely with revenue from the sale of fishing licenses. Unfortunately, the greatest use of these areas is made by pleasure boaters who, under the provisions of the "Motorboat Safety Act," make no contribution to the cost of providing the facilities needed.

A state-wide population survey of the lotic waters of the state is being started in 1960. A similar 5-year study of the lentic waters was concluded in 1959. Various improvement programs are being carried out as a result of it. These include such activities as rough fish removal, the introduction of species, corrective stocking, and the like.

We believe that a major step in fishery conservation history was accomplished during 1959 and will be recorded in 1960. The major spawning ground of the North Carolina population of striped bass has been, from time immemorial, in the rapids of the Roanoke River where it crosses the fall line into the Coastal Plain. Two upstream power reservoirs, operating as peak-load stations, threatened the continued existence of this resource by the frequency of violent water fluctuations in the spawning area. The application to the Federal Power Commission for a permit to build a third hydro-electric impoundment was met by the coordinated efforts of State and Federal conservation agencies. The terms of the license for the construction of this reservoir have been agreed upon, and it is expected that the license will be issued in 1960. The terms include considerations of both water quantity and water quality designed to perpetuate suitable spawning conditions for the striped bass below the impoundments. This accomplishment may well serve as a precedent in the future licensing of hydro-electric projects.

In the field of trout management, the public has become aware that the stocking of hatchery fish cannot possibly substitute for the preservation of native fish populations. There is a continually increasing demand for additional streams to be restricted to the use of artificial lures. The newest step is the creation of "Native Trout Streams" where size and creel limits will be used to distribute the available harvest, but where stocking will be restricted to fingerling fish, if any. The public acceptance of such a program, even through it is limited in its inception, marks an increased awareness that trout fishing must be considered a sport rather than a source of meat if it is to be continued for future generations. A copy of a resolution by the North Carolina Wildlife Resources Commission pertaining to this subject is attached.

The rehabilitation of unbalanced fishing waters is impractical in our reservoirs for the reasons previously indicated. Our biologists assist landowners in the reclamation of farm ponds as an incidental part of their routine duties. Although the total probably runs into several hundred ponds per year, we do not have a record of either the number of ponds or the acres of water involved.

One special aspect of fish management is being originated on a state-wide basis in 1960. As a result of the classification of our anti-pollution agency, the North Carolina Stream Sanitation Committee, many of the surface waters are classified in terms of providing suitable fish habitat. In addition to their other duties, the fishery biologists will carry on a habitat surveillance program on a state-wide basis to determine whether or not there is any abrogation, from a biological viewpoint, of the classifications established pertaining to fish-producing waters. A resolution of the Wildlife Resources Commission pertaining to this policy is attached. Also enclosed are copies of our latest biennial report and our current fishing regulations. J. H. CORNELL, CHIEF, FISH DIVISION

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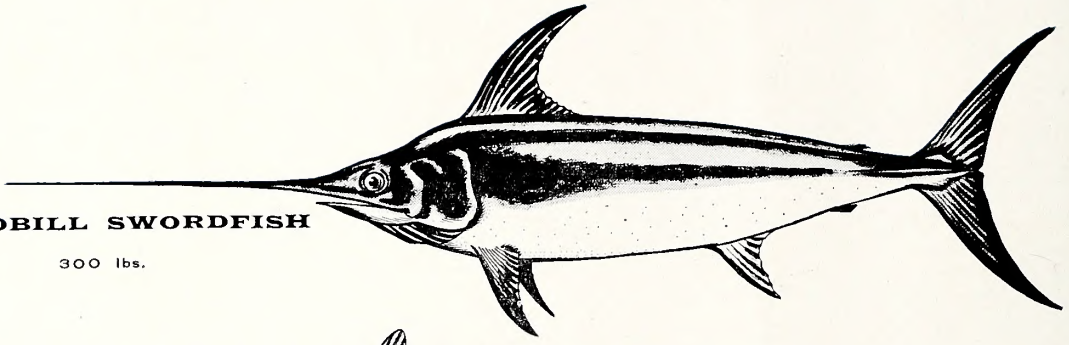
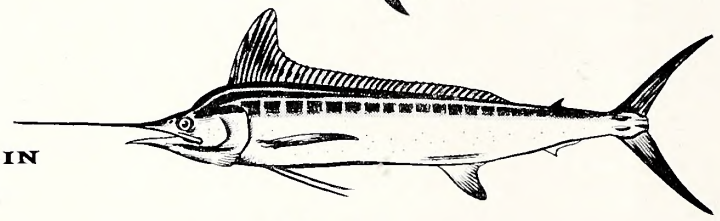
Atlantic Ocean Billfish

WOULD YOU RECOGNIZE THEM ? Here are the Atlantic Ocean billfish and their average weights.



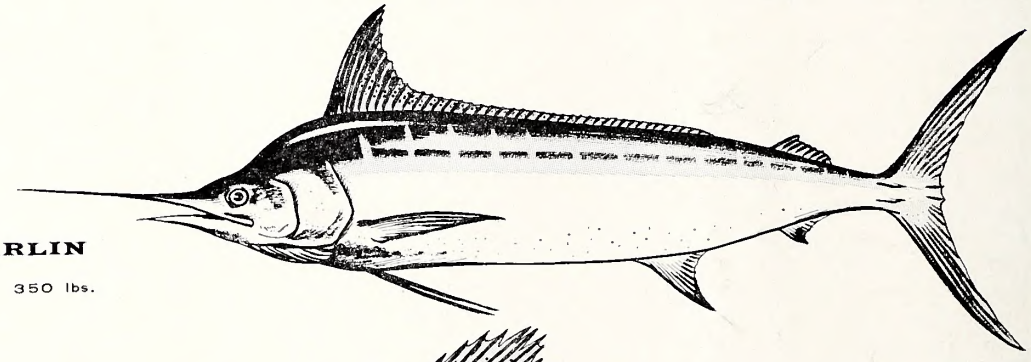
BROADBILL SWORDFISH

300 lbs.



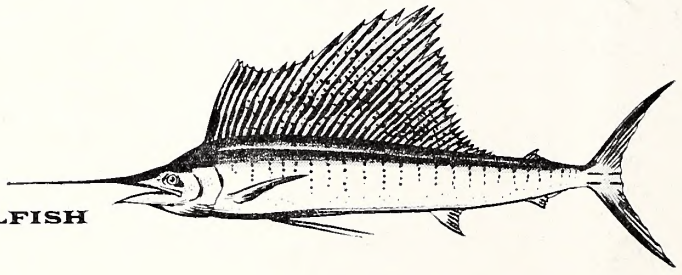
WHITE MARLIN

75 lbs.



BLUE MARLIN

350 lbs.



ATLANTIC SAILFISH

40 lbs.

R.D. DANCE 57

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Wildlife in north carolina

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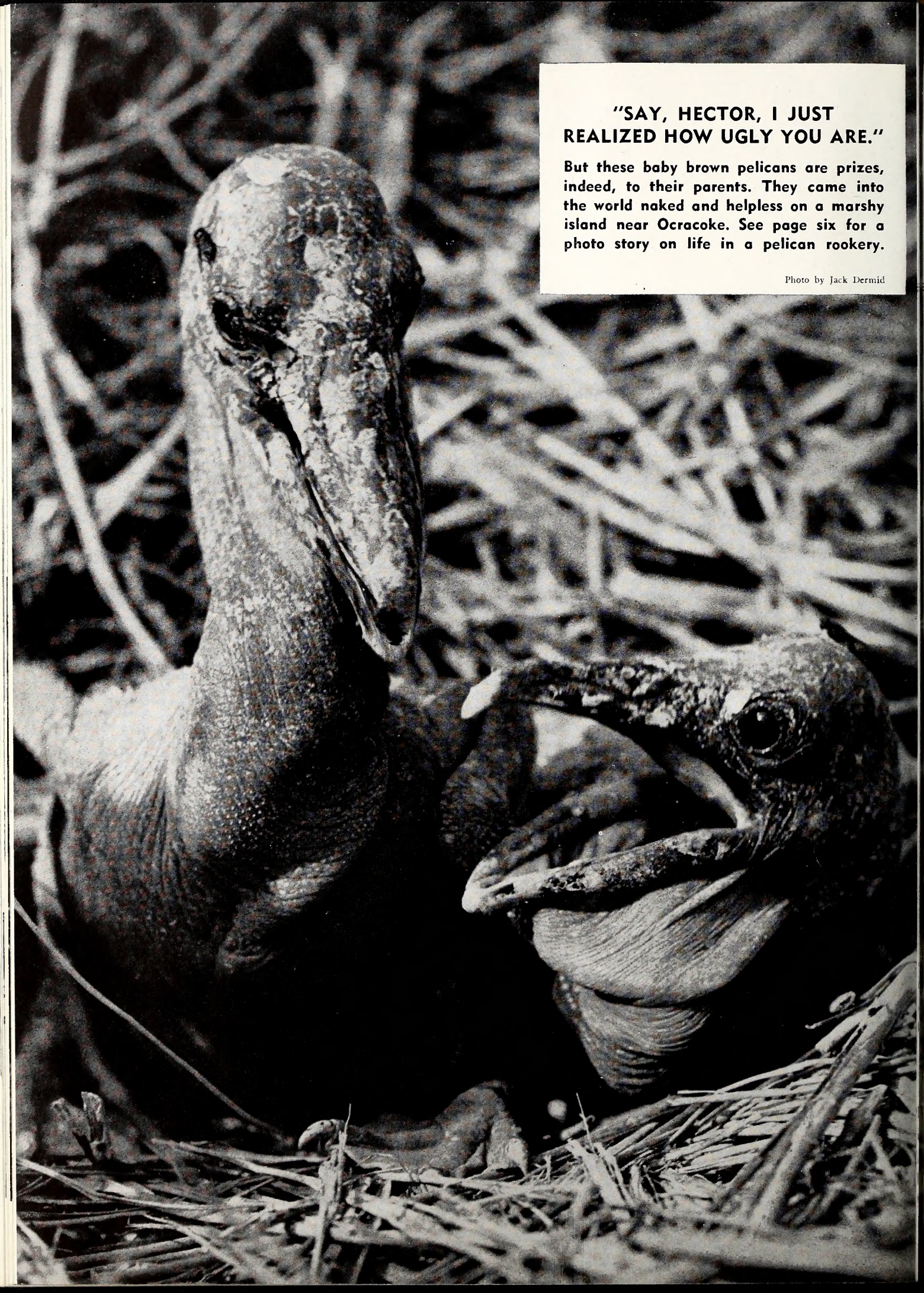
july 1960



"SAY, HECTOR, I JUST REALIZED HOW UGLY YOU ARE."

But these baby brown pelicans are prizes, indeed, to their parents. They came into the world naked and helpless on a marshy island near Ocracoke. See page six for a photo story on life in a pelican rookery.

Photo by Jack Dermid

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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G. E. BEAL ..... Red Oak
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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

Whether they know it by name or not, every fisherman and farm boy knows the spotted sandpiper. They have seen it feeding along margins of lakes and streams, teetering up and down between steps on delicate legs. It is a sandpiper of the interior rather than the coast.

The species occasionally nests in North Carolina, but it is most common as a spring and fall migrant. When it appears in April and May, migrating northward, its breast is speckled with conspicious black dots (left). When it returns from mid-July until October, its breast is solid white (right). The species winters from South Carolina southward. Watercolor by Richard A. Parks.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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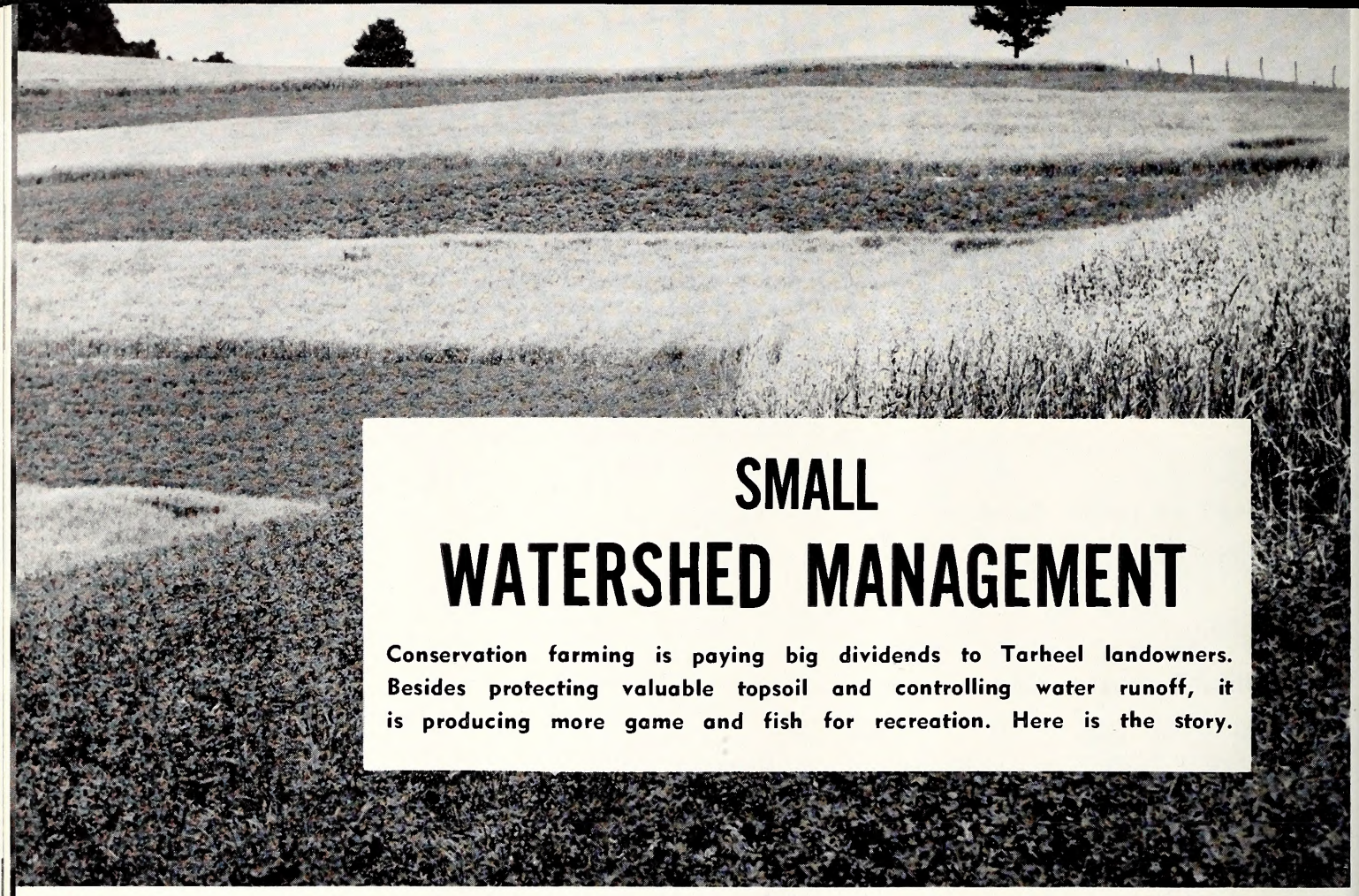
SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.



SMALL WATERSHED MANAGEMENT

Conservation farming is paying big dividends to Tarheel landowners. Besides protecting valuable topsoil and controlling water runoff, it is producing more game and fish for recreation. Here is the story.

By Charles E. Hill
Game Biologist, District 5

Stripcropping, a recommended conservation practice, provides a diversity of food and cover for wildlife. The edge where two crops meet is ideal for the rearing of young quail and rabbits.

DRIVE through the North Carolina countryside following a summer cloudburst and you will see the Tarheel State's two most precious assets churning their way to the sea. A bountiful rainfall, coupled with rich soil, has made North Carolina an agricultural state. Both of these assets wash down the river every time it rains.

Ideally rain should soak into the ground where it falls and then gradually seep out from springs and evaporate from leaves of plants. There should be a minimum of surface runoff. Flash floods and severe overflow of stream banks attest that we have more than just a minimum. Eroded farmlands and parched crops during periods of low rainfall show that we needed the water and the soil that washed away with it.

Flood Control Act of 1936

The first Federal law to recognize the need for runoff and waterflow control was the Flood Control Act of 1936. This legislation pointed to soil erosion control as part of the picture. Work was authorized on watersheds for flood control, but was delayed by World War II.

In 1953 Congress approved funds for starting 60 pilot watershed projects. An objective was to show the benefits of combined soil and water conservation with upstream flood-prevention structures.

Congress watched closely the development of these pilot projects. In 1954 the work was taken beyond the pilot stage with the passage of Public Law 566: "The Watershed Protection and Flood Prevention Act." This introduced a new approach; each watershed project is a local undertaking with Federal help—technical and financial assistance is provided by the Soil Conservation Service. Another feature of Public Law 566 is that the act supplements the present soil and water conservation programs and the programs for development of major river valleys.

Small Game on Watersheds

Approximately 20 of these small watershed projects are being developed in North Carolina at present. Since the practices on these watersheds have considerable effect on the small game around the areas, let's look at the practices being used.

Two basic types of land treatment measures are provided by the act. One type is designed to prevent the destruction of land. This includes treating critical areas such as large gullies, severely eroded land, road banks and fills by planting vegetation. Other practices protecting the land are shaping and planting drains, and building firebreaks and fire towers.

Critical areas are those that are eroded or gullied

and are unsuitable for cultivation. These require protective vegetation to prevent further soil erosion and depletion. You will find such areas in cropland, pastures, and sometimes even in woodlands. Treatment may require seeding to sericea lespedeza, fescue grass or other cover. Sometimes planting tree seedlings is the answer.

Wildlife food and cover may be produced in these irregular-shaped and rough steep areas. After treatment and stablization of erosion has been accomplished, use of treated areas is restricted to woodland, hay, seed harvest and limited grazing—thus the benefits of game habitat improvement remain after erosion has been halted.

Controlling Waterflow and Sediment

The second type of land treatment is control of waterflow and sediment. Examples of these practices are structures which retard flood water and stream channel clearing. Streams are straightened and channels enlarged. Some winter cover for quail and rabbits may result when stream banks are sloped and seeded to fescue, but generally there is no appreciable improvement in game habitat.

Clearing of brush and trees from stream banks eliminates some fine escape cover for small game. This destruction of cover can be partly balanced if wildlife food and cover plantings are established, or if rough and odd areas are designated for wildlife and protected as such.

Other Watershed Practices

A requirement of the act calls for at least half the farmers in the watershed above a retention reservoir to participate in recommended soil conservation and farm planning practices. Preparation of farm plans has been conducted by the Soil Conservation Service for many years, and the potential benefits of Public Law 566 provides an added incentive for farmers to cooperate.

Farm plans include such practices as crop rotations, contour strip cropping, terracing, sodding of waterways, planting eroded areas, planting woodlands, planting food and cover for wildlife, and constructing farm ponds.

Some of these practices, particularly wildlife food and cover plantings, have a direct beneficial effect on small game. Other practices encouraged by farm planning have benefits that are less apparent but still are very important. Many of the soil-holding practices, for example, also provide vital travel lanes for wildlife to move safely between food and cover areas.

Benefits From Retention Reservoirs

The retention watershed that holds flood waters near the source is an important part of the small watershed development plan. Built primarily for flood control, there are other benefits that will also be important in years to come.

A permanent pool of water is part of the reservoir plan, and this pool is capable of supporting considerable fishing. Fluctuations in water level due to impoundment of periodic floods will make fish reproduction difficult at times, but another factor should offset this disadvantage. Grassy banks of the reservoir, normally above the water line of the pool, will be flooded from time to time and this will release large amounts of food for fish in the form of decaying vegetation. Fish don't eat the dead grass themselves, but feed on the insects and other organisms as part of the food chain that converts plant life into fish in your frying pan.

Small impoundments such as the watershed retention reservoirs offer a vast potential for waterfowl. The grass that grows so rapidly along the margins of an impoundment in summer could attract and hold many migratory waterfowl in winter—if an additional foot or two of water floods the grass in winter. Ducks that prefer submerged grass as winter food pass over Piedmont and mountain counties in tremendous numbers each autumn; water control structures that would permit additional flooding make these reservoirs important in our waterfowl hunting picture.

Soil, Water, Forests and Wildlife

Natural resources are considered in four broad divisions: soil, water, forests and wildlife. The Watershed Protection and Flood Prevention Act recognizes the interdependence of all of these resources. Those of us who seek to enjoy our wildlife resources must remember that game and fish depend on the other resources, and that conservation of one usually benefits the others. As civilization continues to absorb more and more land and water, the future of our hunting and fishing depends on the use of the remaining land. Public Law 566 is a giant step in that direction.

These hatching quail chicks are products of the land as much as corn or cattle. When the soil is given the care it deserves, wildlife will produce a bumper crop for harvesting in season.

Photos by Jack Dermid

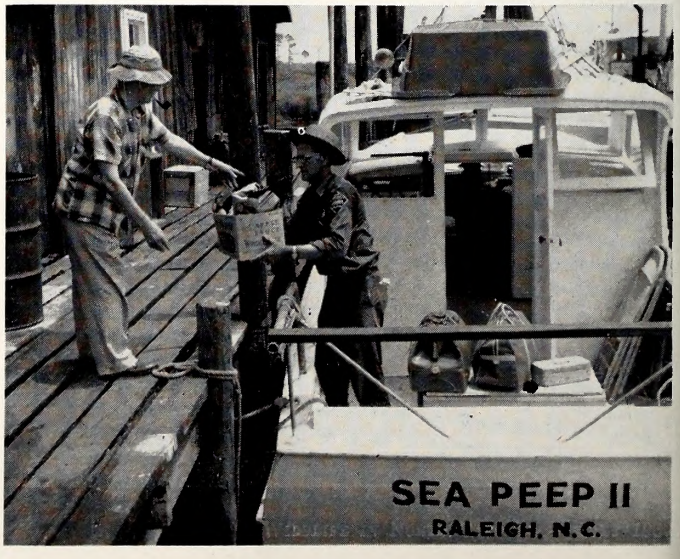
Island of Pelicans

Photo Feature by Jack Dermid

In flight, brown pelicans are monstrous, yet graceful birds. Their wingspread measures about 6½ feet, their bodies about 4½ feet. These adults are sailing over the rookery. A more impressive sight is a string of the birds moving low over the water, alternately flying with wingbeats in unison and gliding.

The pelican rookery presents a strange North Carolina sc Nests are grouped together behind a protecting sandy be To catch fish for their young, the adults forage over so and sea, making spectacular dives into the water from hei of 10 to 50 feet. The fish captured are mostly trash spe

Harry T. Davis (left), leader of the banding expedition, and George Hudson, Pamlico County wildlife protector, stow their gear aboard the Commission's patrol boat at Bayboro. The Sea Peep crossed Pamlico Sound to the rookery. Two members of the party went on the Fish and Wildlife Service's pontoon plane.



WHEN our boat nosed against the shore of Shell Castle Island, we had to pinch ourselves to make sure we were not dreaming, that the expanse of sand and marsh grass was a part of North Carolina. The spectacle of the pelican rookery seemed as exotic as another world or another age.

It was early July and nesting activity was in full swing. From the bow of the *Sea Peep,* we could see a crescent of bulky nests on the ground, gangs of half-grown pelicans dressed in white down, and nonchalant adults incubating their eggs or brooding recently hatched young. The sky, too, was filled with birds, monstrous pelicans swinging back and forth over the rookery, squawking laughing gulls and royal terms that also used the island to rear their young.

According to *Birds of North Carolina,* the first record of brown pelicans nesting in the State occurred in 1929 when 14 pairs were reported using a sandy island known as Royal Shoal. Since then, nesting has been rather erratic until recent years with the huge birds nesting regularly on Shell Castle Island. The population seems to be growing each summer. In 1959, the year of this visit, about 75 pairs were present.

The purpose of our trip was to band the young of all species present, but the brown pelicans stole the show. Shell Castle Island, a remote spot in Pamlico Sound about ten miles southwest of Ocracoke, is their only known nesting site in North Carolina. In the past, scientific study of Tarheel pelicans has been limited and there is much remaining to be learned about them. Banding would provide information about their wanderings, migration patterns, and longevity. Observations in the rookery would add facts to their life story.

In contrast to the loudly protesting gulls and terns, the pelicans were not particularly disturbed by the invasion of their nesting domain. Adults tending eggs or small young were reluctant to leave their nests, and as long as banding operations were no closer than about 30 yards, most remained at their task in quiet dignity. When they did take wing, they moved effortlessly in great circles over the rookery to quickly return as soon as the banders moved elsewhere.

Brown pelicans usually lay 2 or 3 dull white eggs. Nests on Shell Castle Island resemble small flattened haystacks about 15 inches high and 18 wide. Incubation period is about 28 days.

Upon hatching, pelicans are red, naked, and blind. Within a week, their skin changes to black and their eyes open (see inside front cover). White down begins to appear in two weeks.

The young were even more unconcerned. Small naked nestlings raised their feeble heads, mouths gaping, to beg for a handout of fish. Downy young remaining in the nest assumed dignified poses and seemed to enjoy having their pictures taken.

The bulk of the young were out of the nest, half-grown or larger, and collected in gangs in the rookery waiting to mob any parent returning with a meal. But the adults would fight them off and single out their own to feed.

The banding expedition was a cooperative undertaking of the North Carolina State Museum, the Wildlife Resources Commission, and the U. S. Fish and Wildlife Service. Museum Director Harry T. Davis was leader, and other members of the party were: Wildlife Commissioner G. E. Beal of Red Oak; George Hudson of Bayboro, Pamlico County wildlife protector and skipper of the *Sea Peep;* Al Noltemeier of Washington, North Carolina, Federal game management agent; John Grey of Williamsburg, Virginia; Bob Wolff of Greenville; J. W. E. Joyner and John L. Thompson of Rocky Mount, and the author.

The accompanying photos will take you on an armchair visit to a pelican rookery. All that is missing are the sounds, the smell, and the heat.

The downy pelicans at left are large enough for banding, and Al Noltemeier (left) and Bob Wolff team up for the job. As a precaution, Wolff pins down youngster to stop jabs of his beak.

Outgrown their nests, a gang of juveniles watch banding operations with sober interest. These birds already wear numbered leg bands. Future return of bands will reveal their travels.

John Thompson tries banding a youngster alone and winces to avoid jab in the face. With aluminum band in place, this young pelican has become an individual with a number that will identify him for life. If the band is returned when he dies, he will become a statistic in the Bird Banding Office of the Fish and Wildlife Service. In all, 122 young pelicans were banded.

lt pelicans stick by their nests and
:h banding operations on other side of
rookery. When not alerted, they sit
heir nests with heads and necks lower-
) that their bills rest almost horizon-
The ponderous bill is about a foot
, and the flexible pouch under it can
tretched to hold about four gallons.
:eding, baby pelicans "go fishing" in-
pouch for a meal of regurgitated fish.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Hunting Licenses Expire July 31

Persons holding hunting or combination hunting and fishing licenses are reminded that such licenses expire as of midnight July 31. New licenses for the 1960-61 fiscal year go on sale at license dealers throughout the State on August 1. Current fishing licenses are valid until December 31.

New Hunting Regulations Set

At its June meeting in Raleigh, the N. C. Wildlife Resources Commission established the hunting and trapping regulations for the 1960-1961 season. With minor exceptions the seasons and bag limits are essentially the same as for last season. In Alleghany, Ashe, Avery, Mitchell, Watauga and Yancey counties there will be a drastic reduction in the season and bag limit on quail due to extremely heavy snows last winter. In these counties the quail shooting season will extend from November 24 through December 15, whereas in the rest of the State the season runs through February 15. Bag limits in the six counties will be four birds daily, eight in possession and fifty for the season.

Mourning Dove Management Areas Established

Beginning immediately, ten farms in the Piedmont and Coastal Plains sections of North Carolina will be developed as mourning dove management areas by the Game Division of the Wildlife Resources Commission. The farms will be developed for doves in time for the 1960-61 dove hunting season.

Under the plan, each landowner involved will be paid a fee for participating in the program. Landowners will be responsible for planting and cultivating plots of millet for dove food, and will agree to allow public hunting on their land on Wednesday and Saturday afternoons during the dove hunting season. Seeds and fertilizer for the dove food plantings will be furnished by the Wildlife Resources Commission.

The dove management area program is a test operation to determine whether this type of project will be suitable for widespread operation. The hunting areas will be marked with appropriate signs, and hunters will be cautioned not to shoot within 200 yards of farm buildings or in areas where livestock is pastured.

Each of the farms will have ten acres of browntop millet planted in plots of not less than three acres each. The farms involved vary in size from 40 to 750 acres, and are located in Cumberland, Edgecombe, Durham, Davidson, Mecklenburg, Catawba, Gaston, Guilford, Iredell, and Lenoir counties.

Public Health Service to Study Fish Kills

The U. S. Public Health Service is beginning a nationwide survey on fish kills attributed to pollution. The Service has asked the cooperation of state fish and game departments in reporting fish kills. The survey is designed to evaluate the effects of pollution on the Nation's water resources. The U. S. Fish and Wildlife Service is cooperating in the project as well as appropriate agencies in North Carolina.

Fishing access areas such as Avents Ferry (above), on the Cape Fear River north of Sanford, provide year-round access to some of the Tarheel State's very best fishing lakes and streams.

Photo by Tom Rollins

Fishing Access Areas

by Jim Lee

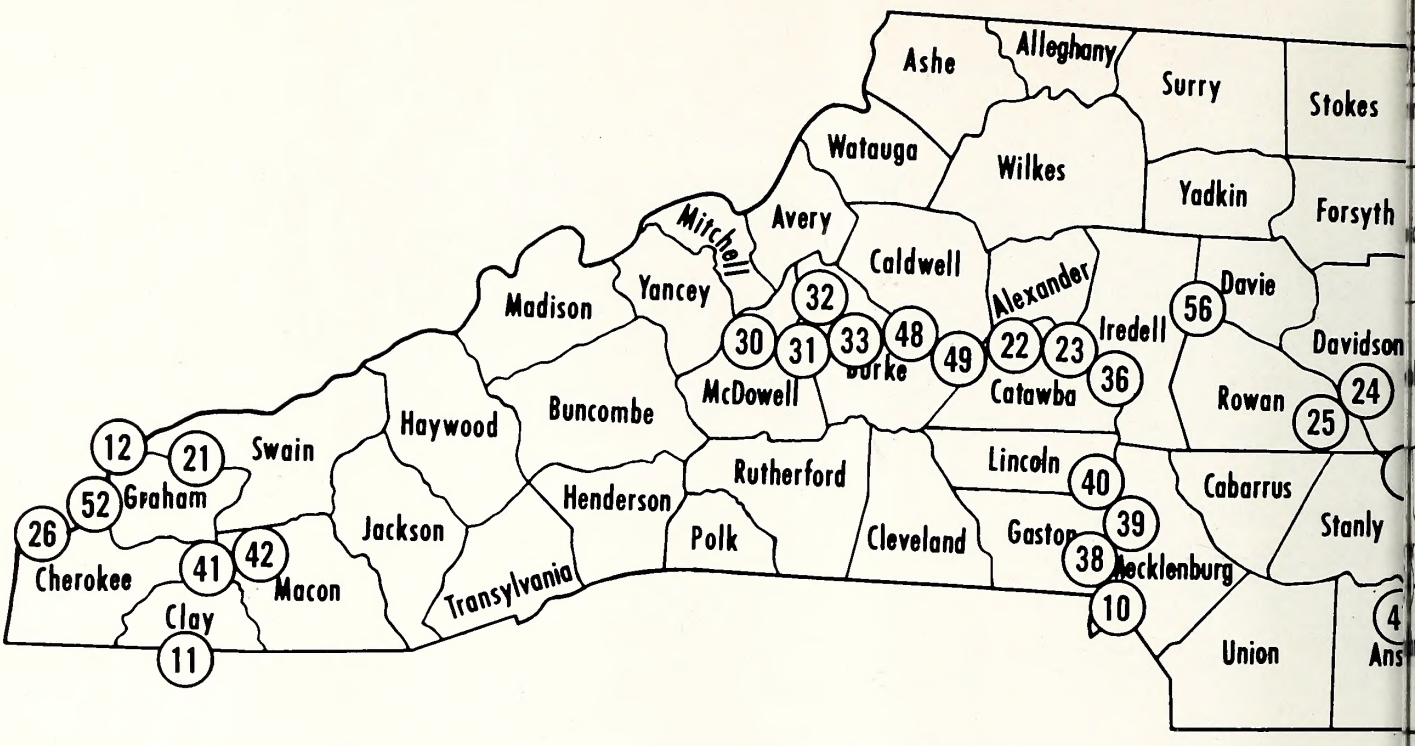
Here is a new list of the Wildlife Commission's free fishing access areas. Keep it with you—these areas are gateways to some of North Carolina's top waters.

WITH the approval of ten new areas at the May meeting of the Wildlife Resources Commission, North Carolina's list of fishing access areas has grown to 62—with 51 scheduled to be in use by July 1 and 11 more planned for development during 1960-1961. All of the areas are shown on the map on pages 12 and 13.

Several new areas are opening this summer, making available important bodies of water to the fisherman. Scheduled for July 1 completion are: Cape Fear River (Dublin), Hickory Lake (Highway 127 Bridge), Meherrin River (Murfreesboro), Santeetlah Reservoir, and Tar River at Greenville and also at Bell's Bridge north of Tarboro.

Boating enthusiasts are welcome to use the areas, but they are built to provide access for fishermen who want to reach fishing waters. Sites are selected by district fisheries biologists and fishing license funds are used for development. A rapid increase in in the number of areas is not anticipated because of the Motorboat Safety Act; registration fees cannot be spent on facilities.

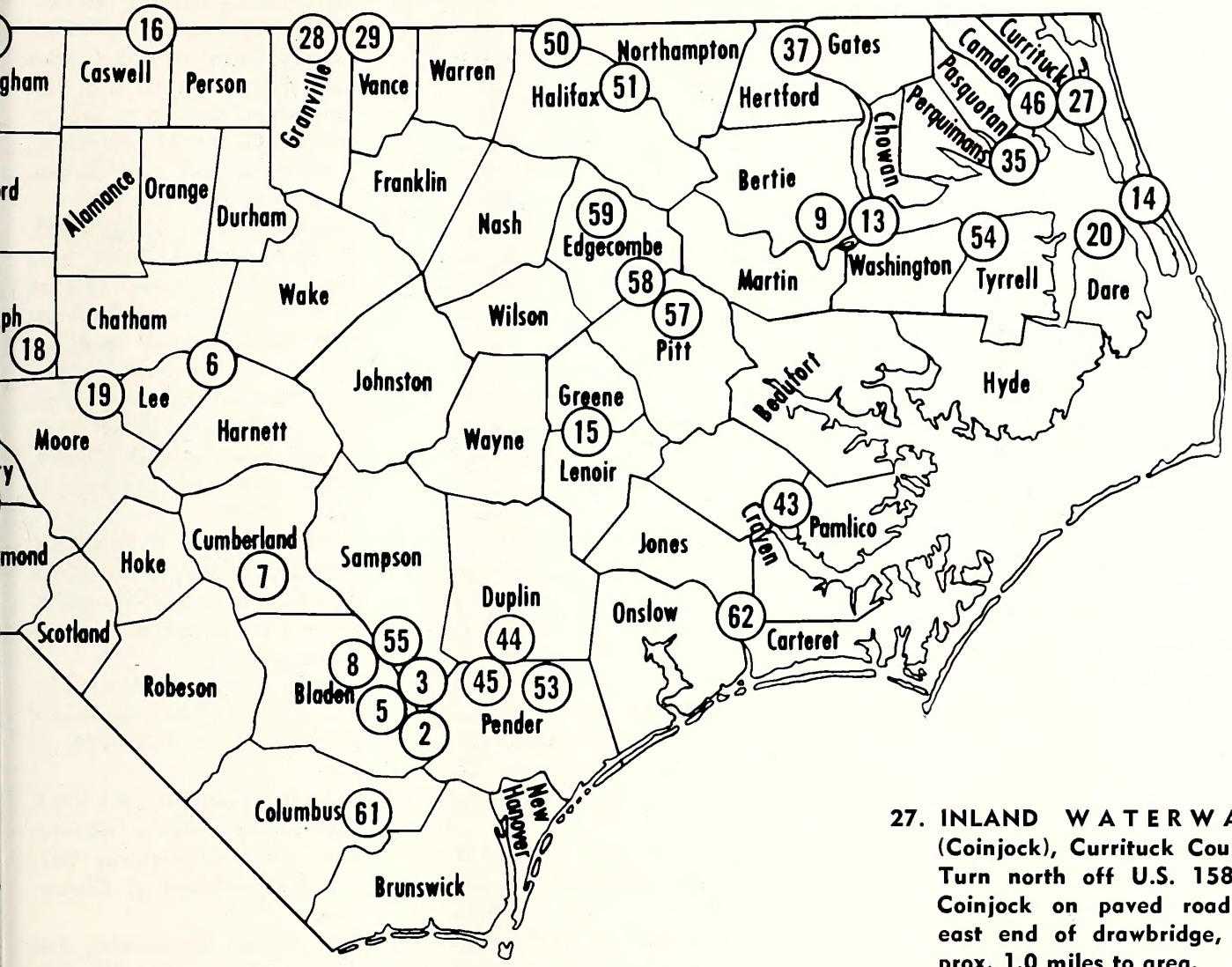
Simple rules apply at the areas. Use of the launching ramps is free, but fishermen and boaters are cautioned not to block ramps with parked cars and trailers, and to refrain from littering the grounds. Have fun, but keep it safe.



Fishing Access Areas

North Carolina Wildlife Resources Commission

1. BADIN RESERVOIR, Montgomery County. To be constructed in 1960-1961 off the Lakemont Rood in the Beover Dom section of Bodin Reservoir.
2. BLACK RIVER (Hunt's Bluff), Bladen County. Turn south off N.C. 53 on dirt road at Block River Bridge 10.0 miles west of Atkinson; 1.0 mile to areo.
3. BLACK RIVER (Ivanhoe), Sampson County. 8.0 miles south from Harrells to Ivonhoe ond area.
4. BLEWETT FALLS RESERVOIR, Anson County. Areo to be developed in 1960-1961, will be on southwestern shore of Blewett Folls; can be reached from U.S. 74 east of Wadesboro.
5. CAPE FEAR RIVER (Elwell's Ferry), Bloden County. 3.0 miles north from N.C. 87 at Carvers on poved rood to area.
6. CAPE FEAR RIVER (Avents Ferry Bridge), Chathom County. Turn south off U.S. 1, one mile eost of Moncure; follow rood 6.0 miles, turn right 1.0 mile to oreo.
7. CAPE FEAR RIVER (Fayetteville), Cumberland County. Follow N.C. 87 four miles south from Foyetteville to orea on left.
8. CAPE FEAR RIVER (Dublin), Bloden County. Follow unnumbered poved road from Dublin 3 miles north to intersection with poved road; turn right and follow for 200 yards, turn left on dirt road to areo.
9. CASHIE RIVER, Bertie County. To be developed in 1960-1961 on the Cashie River 2 miles from Windsor.
10. CATAWBA LAKE (Withers Bridge), Mecklenburg County. From Charlotte follow N.C. 49 to Shopton, turn left on paved road right, follow 3.2 miles to dirt rood right, to areo.
11. CHATUGE RESERVOIR, Cloy County. Approx. 4 miles eost of Hayesville on U.S. 64. Turn south on grovel rood ot Ledford's Chopel and drive to end.
12. CHEOAH RESERVOIR, Swoin County. To be developed in 1960-61 on Cheoah Reservoir beside N.C. Highwoy 28 Bridge neor Fontana Villoge.
13. CHOWAN RIVER (Edenton), Chowon County. To be developed in 1960-1961 ot the eost end of U.S. Highwoy 17 Bridge ot Edenton.
14. COLINGTON BAY (Avolon Beach) Dare County. Turn west off U.S. 158 ot Avalon Beach on paved rood, 0.5 mile to areo.
15. CONTENTNEA CREEK, Greene County. One block eost of U.S. 258 within city limits of Snow Hill.
16. DAN RIVER (Milton), Coswell County. Follow N.C. 62 one mile north to areo ocross bridge.
17. DAN RIVER (Leoksville), Rockingham County. Follow N.C. 14 one mile south of



Leaksville city limits to area.

18. DEEP RIVER, Randolph County. To be developed in 1960-1961 on the Deep River near the U.S. Highway 64 Bridge west of Ramseur.
19. DEEP RIVER (Carbonton), Moore County. Follow dirt road south from Carbonton 1.0 mile to area.
20. EAST LAKE (Mashoes), Dare County. 3.0 miles north of Mann's Harbor on dirt road, turn left at sign to area.
21. FONTANA RESERVOIR, Graham County. To be developed in 1960-1961 on the south shore of Fontana in the Yellow Branch section near Tuskeegee.
22. HICKORY LAKE (Highway 127 Bridge), Alexander County. Follow N.C. 127 north from Hickory, cross steel bridge over Hickory Lake and turn left on first unpaved county road beyond Lakeside Beach.
23. HICKORY LAKE (Lower Hickory Lake), Catawba County. To be developed in 1960-1961 on south shore of lake 2 miles from dam off Spring Road.
24. HIGH ROCK LAKE, Davidson County. Approved for development in 1960-1961 on the Davidson County shore of High Rock near Highway 8.
25. HIGH ROCK LAKE (Dutch Second Creek), Rowan County. From Salisbury turn south on Bringle Ferry Road, approx. 10.0 miles to area.
26. HIWASSEE RESERVOIR, Cherokee County. Turn north off U.S. 19-129 to square in Murphy. Follow main road approx. 8 miles.
27. INLAND WATERWAY. (Coinjock), Currituck County. Turn north off U.S. 158 at Coinjock on paved road at east end of drawbridge, approx. 1.0 miles to area.
28. KERR RESERVOIR (Grassy Creek), Granville County. Turn west off U.S. 15 one mile north of Bullock on dirt area on right.
29. KERR RESERVOIR (Nutbush), Vance County. From U.S. 1 north of Henderson, follow Satterwhite's Point road 5.0 miles to dirt road left, follow this road 1.0 mile to area.
30. LAKE JAMES (Wildlife Club), McDowell County. From U.S. 70 turn north 5 miles east of Marion onto N.C. 126; follow for 1 mile, turn left on dirt road for 0.7 mile, turn right 0.6 mile to area.
31. LAKE JAMES (Canal Bridge), Burke County. From U.S. 70 turn north 5 miles east of Marion onto N.C. 126; follow this across dam into Burke Co.—area between dam and canal bridge.

Fishing Access Areas

(CONTINUED)

32. LAKE JAMES (Linville Arm), Burke County. From U.S. 70 turn north 5 miles east of Marion onto N.C. 126 for 11.8 miles.
33. LAKE JAMES (Minosa), Burke County. Turn north off U.S. 70 at Glen Alpine, cross railroad overpass, turn left and approx. 6.0 miles to area.
34. LITTLE RIVER (Troy), Montgomery County. Turn south at Courthouse in Troy, follow paved road 4.0 miles to area.
35. LITTLE RIVER (Hall's Creek), Pasquotank County. Follow U. S. 17, eight miles south from Elizabeth City to paved road to southeast, turn southeast on paved road, 3.0 miles to area.
36. LOOKOUT SHOALS LAKE, Catawba County. Turn north from U.S. 64-70 at Claremont and drive 5.0 miles; turn right on Oxford School road about 1.0 mile to sign on left to area.
37. MEHERRIN RIVER (Murfreesboro), Hertford County. Follow U.S. 258 for one mile north from Murfreesboro to area on right.
38. MOUNTAIN ISLAND LAKE (Highway 16 Bridge), Gaston County. Twelve miles northwest from Charlotte on N.C. 16, west end of bridge.
39. MOUNTAIN ISLAND LAKE (Davidson Creek), Mecklenburg County. Follow N.C. 16 nine miles northwest from Charlotte, turn east at Shuffletown, follow paved road east 4.4 miles to intersection, turn left 3.0 miles to intersection, turn left 0.8 mile to dirt road left, then on to area.
40. MOUNTAIN ISLAND LAKE (Lucia), Gaston County. Follow paved road 2.0 miles east from Lucia.
41. NANTAHALA RESERVOIR (Chaga Creek), Macon County. Turn south off U.S. 19-129 at eastern city limits of Andrews. Drive 5 miles and turn right on Chaga Creek (Forest Service) road. Drive 2 miles to left turn, 1 mile to area.
42. NANTAHALA RESERVOIR (Rocky Branch), Macon County. Follow Wayah Bald Road west from Franklin or east from U.S. 19.
43. NEUSE RIVER (Bridgeton), Craven County. From Bridgeton follow U.S. 17 north approx. 3.0 miles to dirt road left; follow this road to intersection, turn left to area.
44. NORTHEAST CAPE FEAR RIVER, Duplin County. To be developed during 1960-1961 at the N.C. Highway 24 Bridge between Kenansville and Beulaville.
45. NORTHEAST CAPE FEAR RIVER (Holly Shelter), Pender County. Turn south off N.C. 53 ten miles east of Burgaw, follow dirt road 6.0 miles to area on right. (No guns and/or dogs allowed on area).
46. PASQUOTANK RIVER (Chantilly), Camden County. Turn south off U.S. 158 four miles east of Elizabeth City on N.C. 343 for approx. 1.0 mile, turn right approx. 3.0 miles to area.
47. PEE DEE RIVER (Highway 109 Bridge), Anson County. At river bridge on N.C. 109 approx. 10.0 miles north of Wadesboro.
48. RHODHISS LAKE (John's River), Burke County. Follow N.C. 18 approx. 3.0 miles north of Morganton to second concrete bridge.
49. RHODHISS LAKE (Castle Bridge), Caldwell County. Turn north off U.S. 64-70 approx. 3.0 miles east of Valdese; cross bridge into Caldwell Co., area is on right.
50. ROANOKE RAPIDS RESERVOIR (Thelma), Halifax County. Turn north 5.5 miles east of Littleton off U.S. 158 to Thelma, then on to area.
51. ROANOKE RIVER (Weldon), Halifax County. At Striped Bass Hatchery, Weldon.
52. SANTEETLAH RESERVOIR, Graham County. Turn west from U.S. Highway 129 at north city limits of Rabbinsville, follow paved road approx. 2 miles to area on right.
53. SHELTER CREEK, Pender County. Turn south off N.C. 53 ten miles east of Burgaw, follow dirt road 1.0 mile to area on left.
54. SCUPPERNONG RIVER (Columbia), Tyrrell County. 1.0 mile west of Columbia on U.S. 64 turn north at sign to Scuppernong River.
55. SOUTH RIVER (Garland, Bladen County. 2.0 miles south of Garland on U.S. 701 to area.
56. SOUTH YADKIN RIVER (Cooleemee), Davie County. Turn off N.C. Highway 901, 3 miles northwest of Cooleemee.
57. TAR RIVER (Greenville), Pitt County. Turn west off U.S. Highway 13 at airport north of Greenville. Area located beyond airport on left.
58. TAR RIVER (Old Sparta), Edgecombe County. On N.C. 42 at river bridge east of Old Sparta.
59. TAR RIVER (Bell's Bridge), Edgecombe County. Follow N. C. Highway 44 one mile north from Tarboro to Bell's Bridge over Tar River.
60. TILLERY LAKE, Montgomery County. Follow N.C. 27-73 south approx. 10.0 miles from Albemarle to area.
61. WACCAMAW LAKE, Columbus County. From Lake Waccamaw (town) go to lake, turn right 1.0 mile to area.
62. WHITE OAK RIVER, Jones County. To be developed in 1960-1961 on Forest Service land between Maysville and Stella.

It's not the SIZE It's the FISH

There is unlimited outdoor adventure in capturing strange and beautiful fish for a salt water aquarium.

Collection equipment is simple: a minnow seine, several plastic buckets, and tennis shoes to protect the feet from shells. Success is greatest during low tide when fish gather in pools.

By Rip Collins
City Editor, Wilmington Morning Star
Photos by Jack Dermid

THE fisherman had been standing on the pier for the better part of the morning. Long enough, at least, for the grandeur of the sea and the North Carolina shoreline to lose its lustre. Finally there was a sharp tug on his line, a smile lit up his sunburned face and he began to reel in rapidly. The smile faded as he ruefully surveyed a sand shark, all of a foot long.

"Dag-bone it," he growled and gingerly he reached out to pick the pest off his line.

A lean, sunburned fellow, standing idly by, darted forward. "Here," he said, "let me help you with that." Quickly he plunged his hand into a pail of nearby water and deftly dehooked the shark.

"Do you mind if I keep this fellow?" he asked the fisherman, with a quick grin, "Thanks." And he was gone.

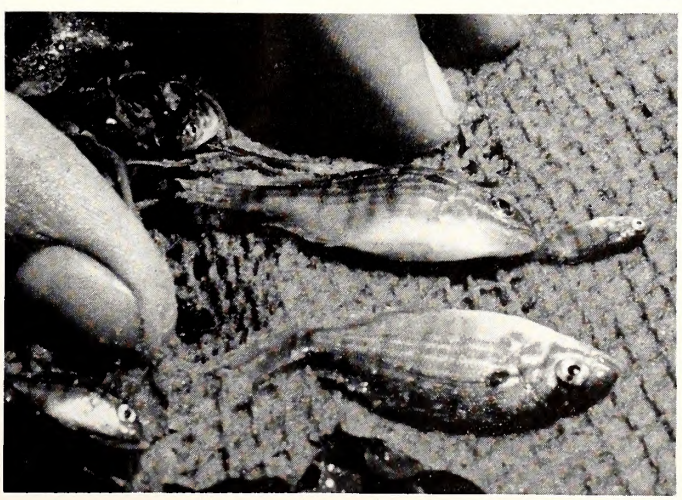
The fisherman watched him race down the pier, shrugged his shoulders and went back to fishing.

The lean, lanky, fellow wasn't crazy. He was just one of the many who have found a new hobby in the capture and keeping of marine fish in home aquariums—a hobby that has been put within the reach of anyone with the perfection of synthetic sea salt by a New York aquarium company and now available locally in many pet stores.

Geography does play an important part in the capturing of your own specimens, although the author knows of one couple who live in a New York apartment. But they travel to Florida every year on their two-week vacation to catch beautiful and unique reef fish.

For those fortunate enough to live in North Carolina the trip to the ocean is secondary. And the

Any fish that captures the collector's fancy is fair prey for an aquarium. Smaller ones, such as these pinfish, are easiest to keep alive. Collins' pets thrive on diet of brine shrimp.



Author Collins (left) and son, Cork, search for new species to add to their collection. They constantly fight the temptation to keep all they catch, but fish die in an overloaded aquarium.

Outer and Inner Banks provide some real thrills and surprises in the many varieties—including some odd fellows—to be found.

Another factor, and one that is of great importance, is that it is a hobby that can be enjoyed by all members of the family.

Some 20,000,000 persons in the United States are conversant with some phase of the hobby of collecting, breeding, and keeping of tropical fish. This collection and keeping of marine specimens is but an offshoot—or an outgrowth—of that hobby.

Perhaps the impact that collecting marine specimens has on a person can be judged by the fact that I am writing this on a night when the state has just begun to dig out of one of the worst snowstorms of recent years. And in reading over my notes of last summer I can visualize the warm sun, smell the fresh salt air, and recall the thrill of finding a comparatively rare—at least to us—unusual fish in the seine net after a long drag through a tide pool at Wrightsville Beach, N. C.

We, Connie, Cork—my son and No. 1 boy—and I, enjoyed it from April to September. Only Ronnie, the fillie of the family dissented. She preferred the fishing pier with its juke box, refreshment stand and boys. But even she fell under the spell to the extent of trying to con fishermen out of catches that she thought would fit into the tank.

The three of us ranged the coast all spring and summer, catching fish, exploring tidal areas that weren't too often seen by man. We traveled many miles and dragged our 15-foot minnow seine for many an hour. But we enjoyed every moment of it.

The initial outlay for equipment, including tanks —or aquariums—is slight. Any tropical fish dealer can set you up with the right tank and other equipment. For collecting you will need a minnow seine, several plastic buckets—metal reacts to sea water and kills fish—tennis shoes, patience and ocean. In addition we use snorkel and flippers—but only because Cork and I are also avid skin divers.

The public library will provide you with a good book on the types of marine fish to be found along the North and South Carolina Coasts. The range will amaze you.

We began by reading up on the sea. This in itself is an interesting phase. But we found it was a mistake. After Connie read up on the ocean we had difficulty luring her down to the edge of the sea. She persisted in standing on the highest sand dune on the beach.

"Ugh," she said one afternoon, after reading a textbook on marine life, "I didn't know that nice clean, pretty, ocean has so many nasty things in it. You'll never get me to put one foot in that stuff."

How, I asked indignantly, did she think that science would progress if everyone felt the same way.

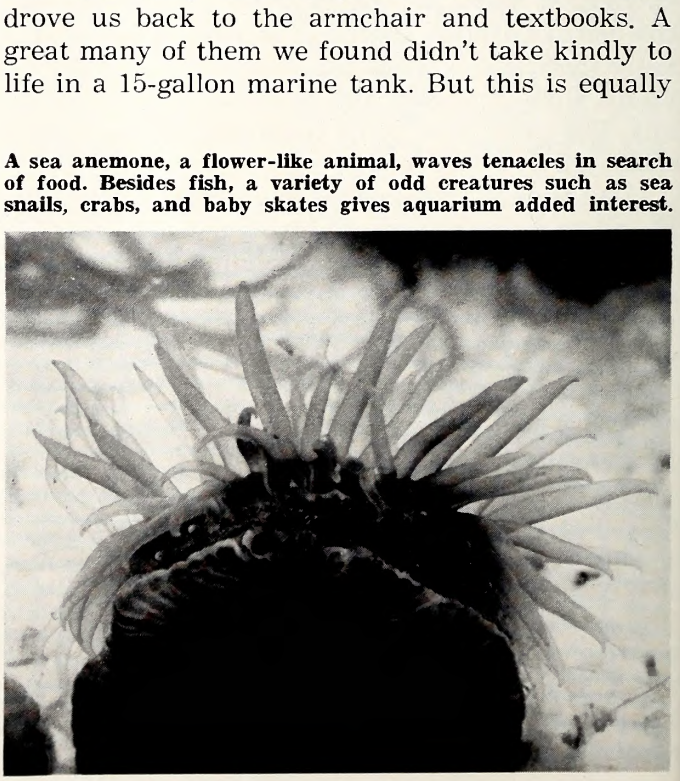
"Science, schmience," she said, doggedly, "I still say you'll never get me to put my foot in the ocean."

Not even, we asked, for a new bathing suit? Any one you want? "That's different," she said, "when do we start?"

You will find, as we did, that even the most innocent-looking pool will divulge some of the oddest-looking fish you have ever seen. Little black and gold sheepshead that rival any imported fish for beauty, a tiny sea horse that will win your heart with his antics, a comical blennie, or a graceful Look-down.

Space won't permit us to go into all of the odd and varied types of fish that we found between Myrtle Beach and Topsail. But we had captured no less than thirty distinct species when cold weather drove us back to the armchair and textbooks. A great many of them we found didn't take kindly to life in a 15-gallon marine tank. But this is equally

A sea anemone, a flower-like animal, waves tenacles in search of food. Besides fish, a variety of odd creatures such as sea snails, crabs, and baby skates gives aquarium added interest.



A salt water aquarium brings the fascination of the sea to your living room. Corals, shells, and sea plants, such as codium (left), arranged on botton of fine gravel create natural habitat for fish. Species shown are: sea horse, pinfish and killifish.

true of their more glamorous brethren down the coast, or from far-off lands.

We brought back Sergeant Majors, a native of Florida, who, victims of tropical storms, found themselves adrift and helpless; small barracuda, no longer than a man's finger; silver majorras that spun through the green codium like newly-minted coins; squat ugly toadfish; tiny puffers, no larger than a pea; porcupine fish—that weren't much bigger; brilliant red and blue pistol shrimp; trunk fish that look like coffee beans with golden eyes; lizard fish, fierce-looking with long jaws and mean teeth and the disposition of a choir boy; the aforementioned blennies who look like small Charles Laughtons and whose clown-like antics amused the family by the hour; pinfish with their translucent red and blue coloring; hermit crabs that looked as though they had been carved from ivory by a Chinese craftsman; flowery anemones, with their ugly grace; and, finally, a tremendous, awed, love for the sea.

We set up the tank, using tap water and the synthetic sea salt. Then we placed in the codium, which is a common variety of sea plant, and some well-cleaned coral. Then we attached an air pump to filter the water. After 72 hours we added the first fish. From then on we were hooked. It was only a matter of time before we found ourselves at the beach every day. And every day we learned something new and interesting.

A knowledge of tropical fish isn't necessary to enjoy this new phase. But it is helpful. As we said earlier any dealer can provide you with the technical information, or you can find it in your library. It's no great mystery.

You will find the seashore a mysterious and captivating place. You will find the sea the same. And if you are like us you will find it an excellent tonic for shaking the atomic blues, or finding your proper perspective in the scheme of things.

Two books that can be found in any bookstore—and most newsstands, that are invaluable are *FISHES* and *SEASHORES*. Both are Simon and Schuster paperbacks and both will provide an excellent background for the beginner.

We hope, the three of us, that you have as much fun trying this segment of the fish hobby as we did—and will have this summer. Good luck.

The Skipper

Conducted by Duane Raver

- SMOOTH SAILING
- OFFSHORE OUTBOARDING
- SKIN DIVERS FLAG
- STAY WITH THE BOAT

SMOOTH SAILING

A dependable outboard motor in good working condition is not only a pleasure to use, but might be the difference between a safe water trip and real trouble. Boating safety begins with safe, reliable equipment properly operated.

Fuel mixtures are pretty well standardized for modern outboards, but here are some suggestions from the engineers at Johnson Motors which should prove interesting and helpful to the outboarding skipper.

Your boating pleasure and safety depend on equipment that is kept in top-notch shape. Correct fuel mixtures are important.

Johnson recommends that regular automotive gasoline or white marine gasoline be used in their motors (which applies of course to all modern outboards). Higher octane fuels may be used but generally offer no advantages, they point out. Use a reputable outboard motor oil or a regular SAE 30 grade automotive engine oil (not heavy duty). Avoid the use of low price, third grade (ML) oil. One-third pint of oil is recommended per gallon of gasoline; the 6-gallon tank then should have one quart of oil added to it. Use only the recommended oil to gasoline ratio regardless of the claims made for some advertised lubricants.

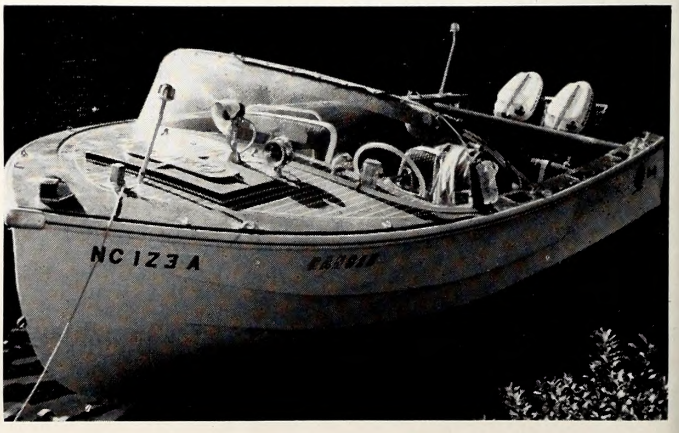
The use of additive compounds such as "break-in" oils, "tune-up" compounds, "tonics", "friction reducing" compounds, etc. are entirely unnecessary and are not recommended for use in Johnson motors, says James Booth, manager of sales administration.

They wrap it up by pointing out that actually the motors are designed for what is readily available. For example, you may get slightly longer plug life from white (unleaded) gas, however it is not always available. Also, when it is available, it may cost more which may offset the advantage of longer spark plug life. The same is true for special or premium "outboard" oil.

OFFSHORE OUTBOARDING

THE open sea at times has no mercy. It can be a placid, playful youngster one moment, a roaring, tearing, giant the next. An outboard equipped craft should be prepared for just such a turn-about before venturing offshore. It can be and is being done, this high seas outboarding, but extra care and a rather specialized vessel are needed to insure a safe outing.

This outboard cruiser with convertible canvas top is ready for offshore work. Its twin engines have plenty of reserve power.



The key to success in undertaking a cruise five, ten or even thirty miles offshore is preparation and planning. The hull itself should be designed for big, open water and rough going. Plenty of beam, freeboard and stability under stress. Seams, in the case of wood, must be sealed and reinforced; fiberglass or metal boats must be in top shape.

Dependable power is essential. Speed is important but secondary and your range can be altered to suit your power plant if necessary. Two motors are usually better than one. Although you may not get quite as much speed from two 35's as with one 70-horsepower motor, and the cost per horse is somewhat more, the "insurance" of a "come-home" motor may be worth it if one fails. Motor failure is bad anytime, but on the high sea may be disastrous.

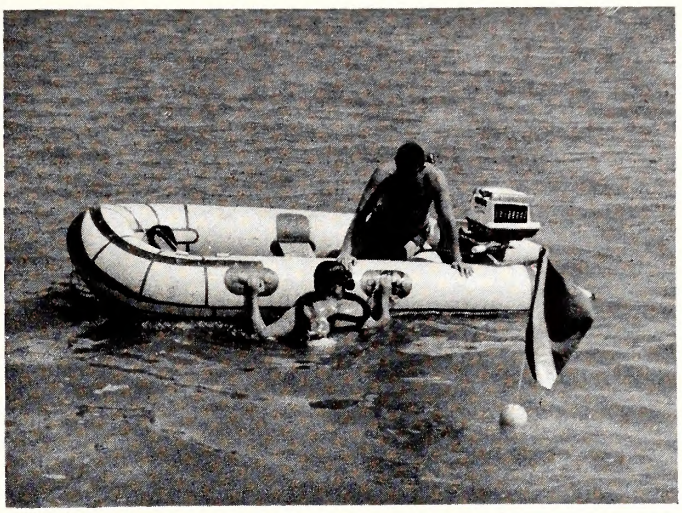
Plenty of fuel and then some goes without saying. Reserve fuel if never used offers peace of mind. Calculate your distance, wind velocity and direction; know your engine's fuel consumption by recording it on known-distance runs before hand. Take 20 percent more gasoline than you could possibly use.

Of course the offshore cruiser will be equipped with all necessary safety devices—fire extinguishers (make sure they operate properly), life saving devices, lights and sound making devices, plus a lengthy list of other gear ready for use. Ship-to-shore communication is very desirable but if your craft doesn't have it, at least carry distress signals —flares—of some sort. All these items should be stowed in out-of-the-way but readily accessible places.

Charts—the best you can get—of all the areas you plan to cover, are essential. Have your course mapped out, tell someone of your destination and expected arrival times at various points. A good compass is a foregone necessity. Know special hazards, reefs, shoals, currents, that may be in your path. Plan your voyage thoroughly.

Food and water supplies are not easily forgotten but take along a little for emergency use. It's a long way to the nearest super market from the Gulf Stream.

"Of course, there are a few imperfections."



Skin diving is a rapidly growing water sport. It can be a safe one. Our friends here are operating from a stable home base, have an observer in the boat, and have the divers' flag flying. Boatmen should know and observe red and white safety flag.

STAY WITH THE BOAT

AN over-turned boat and even one filled with water and submerged to the gunnels could save your life—if you will just stay with it and hang on. Almost every type of boat will float whether bottom-side up or swamped. To abandon ship may be a short-cut to the happy hunting grounds.

Wooden hulls most certainly will keep you afloat practically indefinitely if you can cling to them. Most fiberglass and metal boats have floatation chambers that will keep the craft up even plumb full of water and a half a dozen people hanging on. An outboard boat (and even most inboards) rarely "sink". The big engines of some may take them to the bottom, but if your capsized or damaged hull is still afloat, do not attempt to "climb in", but merely cling to it and wait for help. Exposure to chilling waters takes its toll in such cases, but to strike out swimming aimlessly for land miles away or even for a distant boat, your chances are practically nil.

It may take an actual demonstration to convince yourself that your boat will float completely filled with water. If you want to make sure of this before the possibility of danger has arisen, take your boat into shallow water (take off the motor first!) and deliberately fill it with water and "sink" it. The first thing you may discover is the difficulty encountered in actually swamping your boat. Try to tip it over; now you know roughly what it takes. If you can persuade some friends into the water have three or four of them hang on to the sides of boat. Still afloat? Even with a 200-pound outboard on the stern, chances are that the whole rig will stay up—and you with it—until help arrives, in case of trouble. We hope you don't have any—trouble that is; but if you do, stay with your boat.

DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Ever smell a bream bed? If you will pardon the use of personal pronouns—I have. Or, at least I *think* I have. The subject of "smelling" bream beds comes up frequently when flyrod artists or worm-drowners get together. Some swear you can, others swear you can't.

Several years ago Hugh Cherry, Raleigh, and I spent nearly every Wednesday afternoon during the early summer bream fishing. We used flies or worms or grubs or anything else the fish would bite. One particularly calm, sultry afternoon we were working the shady side of Bass Lake with little success.

"I smell a bream bed!" Hugh hollered.

"A WHAT?"

" A *bream bed!* Don't you smell something fishy?" Hugh replied.

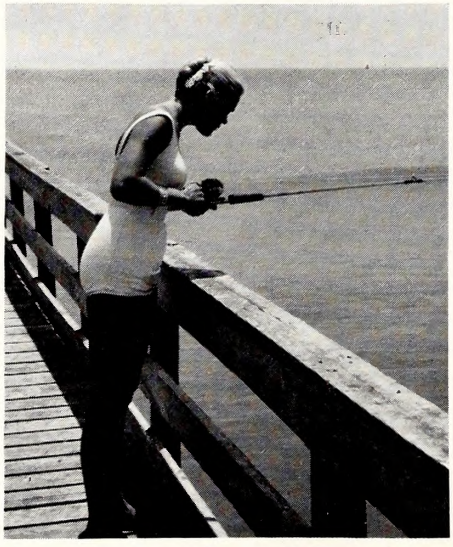
"I most certainly do," I said, "that screwball idea of yours!"

I took another drag off my cigarette, tossed it overboard, and took a few whiffs of the air. There was a distinct fish odor, a smell of fresh fish. There was only the faintest breeze. Hugh was paddling, and he turned the boat directly into it and kept on paddling slowly so that our bait trailed deep behind the boat. The smell of fish grew stronger, and moments later we both hooked a nice hand-sized bream. We fished the spot for about fifteen minutes and took our limit within that time.

This could be plain coincidence; but there was a definite odor of fish in the breeze that led us to the bream bed. And we both took a limit of fish in short order. I was still skeptical about the idea on the way home. But the same sort of thing happened on two other occasions, and neither Hugh nor I give a hoot whether or not there is a scientific explanation for it.

Hot Weather Reading

One of the most fascinating books these old eyes have fallen upon in years came to the editorial desk by way of Juneau, Alaska, and a good friend named Bob Henning who edits *The Alaska Sportsman.* It is not a big book,



Lure of the sea! Mrs. Gail Thomas tries her luck off a pier at Wrightsville Beach.

less than a hundred pages, but it will take you a long time to read it. You will find yourself stopping to think almost every paragraph. The title is *"I am Eskimo—Aknik my name."* It was written by an Eskimo, whose Christian name is Paul Green, as a series in the above-mentioned magazine. The illustrations are by George Ahgupuk, whose art work won him the Grand Prize of Mexico.

The book makes you feel the icy blasts of Arctic winter, and will explode many an idea you were given about Eskimos in school. It will take you hunting for whale and caribou, walrus and polar bear, and will teach you that Eskimos use the popular idea of the igloo only as an emergency shelter along the winter trail. To give an idea of the style of writing, the following short chapter is quoted. Note the gift for saying much in a few words: The title of the chapter is:

How Mama Eskimo
Make Ice Cream

MAMA ESKIMO use reindeer or caribou fat for making ice cream. She took fat and chop it up fine. After chop it up, rounded it up again put it in a pan, and heat it a little. After she heat little she put seal oil and water on fine snow and start to work with hand and stir it up.

Pretty soon that fat getting white and getting bigger and bigger. Pretty soon she have pan full of Eskimo ice cream. When she have pan full of ice cream, she add berries, any kind berries you want. Some time she use meat instead of berries, chopped up some meat and added to ice cream.

Now today sometimes they use raisin or dried apple. They cook dried apple and raisin then add Eskimo ice cream. Gee, it sure good. Na-koo! (that mean fine.) They use seal oil or water more than once, depend on ice cream how it look. Some time they use fish, cook fish, boiled. After fish boiled they took all the bone out and squeeze the fish, take all the juice out and use it for ice cream.

It did not take much of reindeer or caribou fat to make pan full of Eskimo ice cream. Let me tell you something, my friend, that why Eskimo in the Arctic of Alaska never waste reindeer or caribou fat. They use everything they can when they get any kind of wild game.

Wesson oil is about same as seal oil.

This One Is Way, Way Out!

DEAR SIRS: I am very interested in wildlife so I have written a poem which I thought might be appropriate for your

Wildlife Magazine. If there is any rewards for this poem I shall appreciate it very much. That is if you see fit to use it.
RONNIE ROBERTS, SANFORD

We can give no reward to Ronnie except to print his poem. It is different. Read it aloud. It is not Beatnick, but as you read it aloud, listen for a flute or clarinet in the background—and a bongo drum beating.

Purple Fish

by Ronnie Roberts

I am sitting by a creek
  High upon a little peak.
Creeks were made for fish
  Although I prefer them on a dish.
Fish, fish, fish.
There is a certain creature
  I want to tell about
This is a fish called a purple trout.
  He roams about with other trout,
That's the purple trout.
  Fish, fish, fish.

Photo by Jim Lee

Aerial view of a familiar place: Satterwhite Point, Kerr Reservoir.

KEEPING TAB ON STRIPED BASS

If you fished the Roanoke River for striped bass last spring near Weldon, the chances are that you met Randall Cheek, a graduate student in fisheries management at North Carolina State College. Cheek (left below) made a daily check of fishermen and gave each a stamped, self-addressed creel report card with the request that the card be filled in and mailed at the end of the day

Cheek was also on the lookout for tagged striped bass (right photo). During April of 1959 and 1960, about 1,300 adult rock were caught and tagged in the lower Roanoke as they moved upstream on their spawning run. A $1.00 reward is paid to fishermen turning tags in.

The tagging study and creel census are being conducted to estimate the relative number of striped bass that spawn in the Roanoke each spring over a period of years. It is important that the size of the run be known if the fishery is to be managed properly.

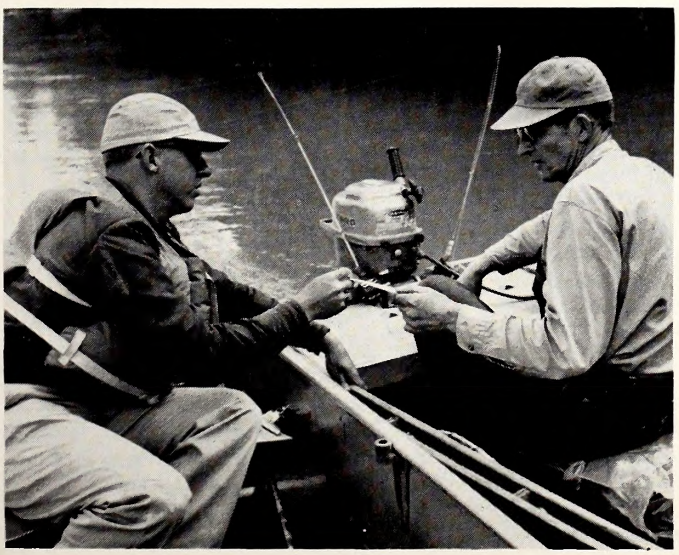
The U.S. Fish and Wildlife Service, Halifax Paper Company, and the North Carolina Pulp Company are supporting the project. The Wildlife Commission is cooperating by providing the use of facilities and equipment at Weldon Hatchery. The State College Department of Zoology is providing the direction and graduate students.

The 1960 striped bass population has not yet been tabulated. During 1959, however, it was estimated that approximately 300,000 striped bass spawned in the Roanoke River. Sportfishermen caught about 51,000 of these fish while commerical fishermen took 6,000.

All fishermen who received creel census report cards last spring and have yet to mail them in are urged to do so without delay. And tags are still worth $1.00. Mail them to Cooperative Striped Bass Study, Box 5215, State College Station, Raleigh, stating the date and place they were taken.

The cooperation of fishermen will make this important study a success.

Photos by Jack Dermid



PROTECTOR OF THE MONTH

Milton Bradley Higgins

Milton Bradley Higgins was born on May 6, 1902, in Burnsville, Yancey County. He is the son of the late John Henry and Mattie Austin Higgins. He was educated in Yancey County public schools, Stanley-McCormick and Yancey Collegiate Institutes.

"Milt," as he is known throughout western North Carolina, was employed as Wildlife Protector and assigned to Yancey County on March 1, 1948. Since that time, he has attended the Basic, Basic In-Service, Intermediate, and Advanced In-Service Training Schools at the Institute of Government in Chapel Hill. Prior to his employment with the Commission, he was employed by the North Carolina State Highway Commission Maintenance Department.

Milt is married to the former Pearl Swofford of Ashford, and they have four children and 6 grandchildren. In addition to wildlife protection, Milt's other hobbies are trout fishing and coon hunting.

ENFORCEMENT RECORD FOR APRIL

HUNTING & FISHING:	
Persons checked	53,730
Total prosecutions	797
Total convictions	778
Total cases not guilty	4
Total cases nol prossed	15
Total fines collected	$3,440.90
Total costs collected	$6,278.85
BOATING:	
Boats checked	7,920
Total prosecutions	340
Total convictions	336
Total cases not guilty	1
Total cases nol prossed	3
Total fines collected	$ 742.44
Total costs collected	$2,496.61

Human Scent Is Used As Animal Repellant

In Europe, farmers are using a human scent to repel wild animals from agricultural crops. The National Wildlife Federation has been told that a "game damage clock" sprays human scent at 15-minute intervals for eight days. The gadget is effective at 300 yards and, when suspended near crops, repels deer and boar. U. S. biologists fear the animals will become accustomed to the secent after a period of time and pay little attention to it.

MR. CLYDE P. PATTON, EXECUTIVE DIRECTOR: Have just been around the pasture and fields and find I have too many quail for a good crop this fall. I know this sounds foolish to those that get their experience from reading books, etc. I find several trios (two male and one female) that means no nesting, and I also see much of the same down the roads and beside the highway.

I also find that in spite of my trying to shoot and scare them away the crows have ruined several nests, and am sure the snakes have cleaned up three more that had six or eight eggs in them. Later on the dusting and spraying will get many more. So, it looks like Mr. and Mrs. Quail have a hard row to weed out.

Some stray dogs broke up the nest of my pair of Canadian Geese, and I will not have any new geese this year. It makes one wonder "what's the use," but I enjoy trying, it is worth the while to see the quail just about sunrise and sunset running around the yard. The geese are notifying me now that they have not been fed. HAROLD C. BRINER, CRESWELL

DEAR SIR: Can you tell me how detrimental geese are to small farm fish ponds?

I have been told by a usually well informed gentleman that geese can smell bream eggs and are very destructive of them.

I have three small ponds on my farm—about an acre and a half each. One of them has a small island in it for geese to raise on. That pond (up until recently) had been the best pond for fishing, but in recent months the bream fishing has decreased very markedly. The number of bass caught is out of proportion to the bream. GEORGE L. CARRINGTON, M.D., BURLINGTON

DEAR DR. CARRINGTON: Your letter regarding the possible destruction of bluegill (bream) by geese has been referred to this office. Normally, geese are herbivorous and should do little, if any, damage to the fish population.

We have no information on the ability of geese to smell fish eggs, but it seems that they would have to have a highly developed olfactory sense to detect the odor of viable fish eggs through a foot or more of water.

It is probable that the decline in bluegill fishing success in your pond is due to removal of the bulk of the catchable size bluegills and also a stunting of the remaining bluegills. A. W. DICKSON, SUPERVISOR, FISH MANAGEMENT

National Fish License: Unworkable?

The following comments, written by Chester Davis for his column in the Winston-Salem *Journal & Sentinel*, should be of considerable interest to every fisherman in North Carolina. While the Wildlife Resources Commission does not take a stand on the "Texas Plan" suggested by Mr. Davis, it is inevitable that some form of universal licensing will be worked out during the next decade. We'd like to hear your comments.

There has been a good deal of talk recently—some of it coming from men in responsible positions—favoring a nationwide fishing license. While the proposals vary somewhat in detail, they all contain two essentials:

1. The sale of one license that will entitle the buyer to fish in the waters of any of the 50 states.

2. A formula for pro-rating the money received from the sale of these licenses among each of the 50 states.

Such proposals have an obvious appeal. Like the automobile license, which is honored in every state, the nationwide fishing license would bring uniformity into an area which now is badly in need of uniformity.

The license laws of the various states are shot full of inconsistencies, even for residents. In North Carolina, for example a resident need not buy a fishing license if (1) he fishes only in the waters of his home county, and (2) uses only live bait. Some states exempt servicemen stationed within their borders from buying a fishing license. Others exempt land owners fishing in private farm ponds. Some states require a salt water license. Others do not.

When it comes to non-residents our license laws are just as inconsistent.

SOAK NON-RESIDENT

Some states soak the non-resident for all the traffic will bear. Others offer the non-resident a short term license, usually good for three or ten days, at a moderate price. Still others, like Pennsylvania, observe the Golden Rule in that they treat a non-resident in precisely the same manner a Pennsylvanian would be treated in that non-resident's home state.

All of this adds up to a mess that is frustrating and, in some cases, decidedly unfair. It makes the universal fishing lic-

The South Seas? Florida? No! A bit of the tropics is present in North Carolina on Bald Head Island (Smith Island) in the mouth of the Cape Fear River. The trees are cabbage palmettos, a native palm that reaches its northernmost limit here.

ense proposals sound a good deal more attractive than they actually are.

For states which have sizable populations and very limited fishing opportunities—states like Iowa, Illinois, for example—the universal license is, indeed, a bargain.

But what of neighboring states—states like Wisconsin and Minnesota—which have prime fishing? Under the plans for a universal license two things will happen to those states:

1. They will lose the sizable amounts they now receive from the sale of non-resident licenses.

2. They will suffer when the income from the sale of the universal license is pro-rated among the 50 states.

This second point requires some elaboration.

The formula for pro-rating license sale funds will consider matters such as population and total area of fishing waters. Under such a formula a state like Montana, a magnificent trout state, will suffer because its population is small and its area of fishing waters (since Montana has relatively few lakes), also is small when compared to that of other states with more limited fishing.

Moreover, trout fishing states would tend to suffer under any formula. It costs vastly more to provide good trout fishing than it does warm water fishing. It is difficult to fit this fact fairly into a formula. North Carolina, for example, must invest heavily in hatcheries to maintain its trout fishing. In Alaska this same investment is not yet necessary.

And then there is the fact that in collecting and dividing the funds raised by the sale of a universal fishing license there necessarily will be a certain overhead or handling charge. Presumably this collection and division of license funds will be made by the federal government. From experience we know that wherever the federal government takes on this sort of job the "handling" charges are excessive.

For these reasons the idea of a universal fishing license strikes me as being impractical. It would, I think, penalize a state like North Carolina and in the long run, prove to be harmful to our trout fishing program.

But, it seems to me, there is an alternative which deserves serious consideration and that is the license plan now in effect in Texas.

Texas sells only one fishing license. The Texas plan permits no exemptions and it charges the same license fee for all, resident and non-resident, fresh and salt water sport fishermen.

The idea of permitting non-residents to purchase a license at the same price paid by residents is, to say the least, novel. But when you think it over it makes sense.

In nine cases out of ten residents will fish more on their licenses than non-residents. In terms of use, therefore, they pay less for their fishing license.

TEXAS PLAN FAVORABLE

It seems to me that the Texas plan, with one addition, would serve nicely in North Carolina. That addition would be the requirement that both residents and non-residents purchase a special stamp when they fish for trout. This is necessary if we are to require the trout fishermen to bear the bulk of the costs of the trout program rather than compel the warm water fishermen to share in those costs.

The Texas plan would greatly enlarge our license income. It would, for example, plug the loophole that now permits thousands of North Carolinians to fish without any license. It would require a license for salt water fishermen who now need no license, and at the same time, provide funds for some much needed research on salt water sport species.

If North Carolina and other states adopt the lead set by Texas we can accomplish two primary goals: (1) Establish uniformity on a nationwide scale in the field of fishing licenses and, (2) at the same time, do this on a state by state basis that is geared to the income needs of each state in maintaining and improving its own sport fishery.

The nationwide license would accomplish the first goal, but not the second. That difference is important to a state like North Carolina where the sport fishery is of such great and growing importance.

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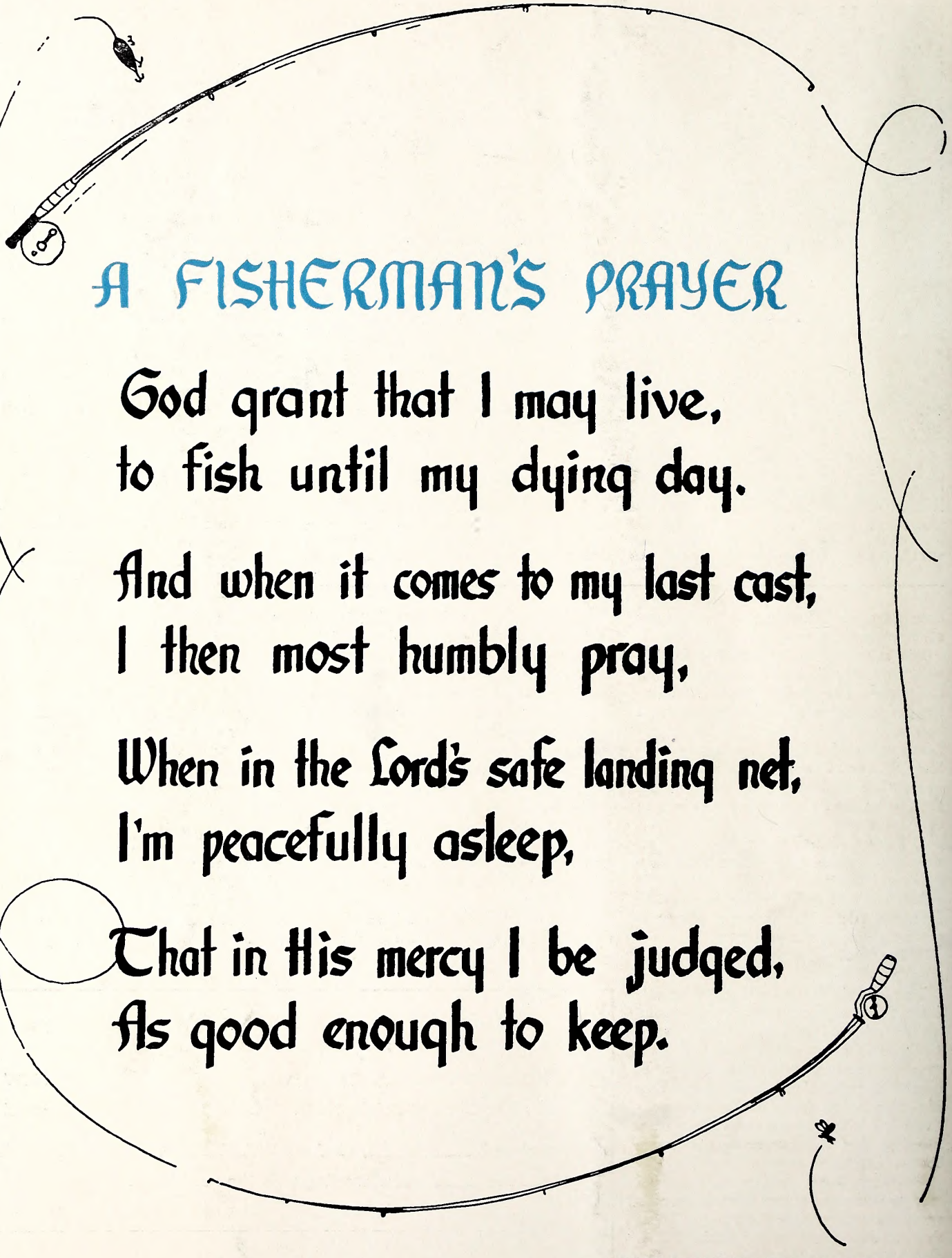

A FISHERMAN'S PRAYER

God grant that I may live,
to fish until my dying day.

And when it comes to my last cast,
I then most humbly pray,

When in the Lord's safe landing net,
I'm peacefully asleep,

That in His mercy I be judged,
As good enough to keep.

PRINTED BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

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Wildlife in north carolina

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august 1960

Photo by Jack Dermid

Crabtree Falls

"Thousands of nerve-shaken over-civilized people are beginning to find that going to the mountains is going home; that wilderness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life." John Muir, a pioneer in the national park movement, wrote these meaningful words over sixty years ago. They are even more timely in the atomic age of today.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

Whether gliding buoyantly behind a party boat or resting on pilings at sunset, gulls are as much a part of the Tarheel coastal scene as sun, sand, and sea. They dip, wheel, and circle in beautiful and effortless flight and are always a joy to watch.

Gulls are mostly scavengers, and they search the beaches and mudflats for food or wait patiently for refuse to be tossed their way from ship or wharf. They are smart, too. They have learned that a clam can be opened by dropping it from a height onto a hard surface and that tourists will share the contents of their lunch boxes.

Eight species of gulls have been recorded in North Carolina. The Herring gulls on our cover were photographed at Oregon Inlet by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Photo by E. L. Thomas

VACATION FISHING

by Duane Raver

Fishing during the hot days of August will likely be slow, but fish can be induced to bite. These tips will bring you success.

WHY is it that just about the worst possible fishing time and summer vacations meet head-on during August? All through May and June we longingly look at the pictures of monstrous catches, and we patiently wait for our August vacation. And what happens? Fishing is absolutely dismal. So it's on this happy note that we set out to remedy this calamity.

One easy way out of the dilemma is to head for salt water. Usually mid-summer catches here are still excellent. It means chartering an off-shore boat, taking your chances with the weather and settling for the deep water critters such as amberjack, king mackerel, dolphin, and the like. And this, of course, is good fishing. But it may be out of reach as a steady two-week diet for many of us. What's next?

At the far end of the state are eight or ten fine fishing lakes glistening in mountain valleys where summer actually is a lazy extension of spring. Cool waters prevail through the hottest weather and fishing may be good even during an August vacation. To say that you'll have no trouble in making limit catches daily is simply to ignore the facts.

Don't expect the fish to bite all the time. Actually you may get only a day or two of real good angling in any given 10-day period; this is true of any section of the State. But still your chances are better in these cool mountain lakes than most other areas if August is your fishing time.

The Local Authority

After checking in at the local motel or other accommodations you're rarin' to go fishing! Your first stop should be at the hangout of the local fishing authority. Often this will be a boat dock operator, sporting goods dealer or even the county wildlife protector. At any of these sources you will get information; some will apply to your situation; some won't.

If the accounts of good catches sound too spectacular, chalk it up to over-enthusiasm; If they run in a pessimistic vein, sort out the bright spots and work on them. What you're looking for are a few local "hot spots", techniques and maybe a couple of favorite lures. Don't hope for a complete run down on pin-pointed locations, water depths, or even exact baits. If you do luck on to this dope, it may pay to follow it up. If the water is completely foreign, and time is a real problem, a guide could be your answer.

Just Looking Around

An hour or so of just looking around in a new lake will pay off in the long run. Still supposing you've chosen a mountain reservoir, you probably will be looking for rocky shorelines, protected from

The local wildlife protector is ready to help you with fishing problems. Check with him for information on recent big catches.

direct winds. Take a couple of soundings; check the bottom type. Simply drift quietly and actually look for fish. They may see you first, but even a glimpse of a fleeting bass will indicate that you are on the right track. Fairly deep water—say 10 to 15 feet—close to the bank is often a good starting place for some casting.

Even with the relatively cool waters, early morning and late evening will produce better fishing than mid-day ramblings. Start out when the mists are rising from the water's surface; even before daylight may pay off. Depending on what the local boys have told you, a small surface lure is usually in order before sunup. A popping bug can be deadly in the clear waters of the high-altitude reservoirs.

Cast carefully and quietly; work the lure slowly a few inches from the rocky bank. Stay out a good casting distance and work the pockets thoroughly. One of the advantages of a fairly small fly rod bug here is that it's effective for bluegills, robin and other panfish, as well as proving the downfall of hefty large and smallmouth bass.

This thinking holds for spinning lures too: stick (at first, anyway) to small spinners, and plugs.

Fish Out Each Cast

The temptation to reel in and get to that "next cast" is particularly strong where so many "fishy" looking spots beckon. Fish out each cast; summer fishing calls for thorough fishing. By the time the sun warms your back to the point that you shed your sweater, head in to the dock. Of course, if they're hitting, by all means stick around; if not, there are always the evening hours.

Mid-day angling in the deep lakes is often a real frustrating ordeal. You know the critters are down there, but where? In addition to bass and panfish, some of these lakes have good populations of walleyes. Bottom bouncing with small jigs, spinners or live bait may pay off. It boils down to finding the fish and this may be too time-consuming to fit into your vacation schedule. Trolling deep seems the best approach to covering a lot of water in a short time. Don't get me wrong, though, keep your trolling slow and use a lure that has good action even at these slow-motion speeds.

Don't pass up panfish. Crappies, yellow perch, bluegills and others may take up the slack in your midsummer fishing.

Photo by Duane Raver

Photo by J. P. Brady

Nantahala Reservoir is a good example of the best in hot weather angling spots. Even here don't expect limit catches.

Then There's Night Fishing

If you're determined to catch fish in August and the so-far-mentioned approaches fizzle, start your angling day at 9 p.m. and end at 3 a.m. Remember, we're desperate by now and ready to try anything. Hit the spots that have been carefully scouted during the daylight hours. At night big bass sometimes fall to lures that they normally would crash-dive from; huge surface plugs that paddle over the glassy surface like wounded water birds. Sound silly?

Maybe the most sensible answer to the whole thing is to take your vacation in early June; or maybe to take up golf! If neither of these suggestions suit you, consider this: bass are rough to catch consistently under the best of conditions. Why not switch to panfish? Many a vacation has been saved, fishing-wise, by a stringer full of bluegills, crappies or raccoon perch.

The average August bass fisherman probably fishes over, around and through a couple hundred pounds of these fine scrappers during a two-week vacation. Yet here is sport aplenty, fine eating, and variety no end. Take bluegills for example.

Never A Dull Moment

By sticking to lures and baits designed specifically for these broadsided fighters, you may find that there's never a dull moment. Many coves of most mountain reservoirs have drifts of debris, floating branches—trash in general—way up at the shoreline near their heads. Under these mats often lie small schools fo bluegills.

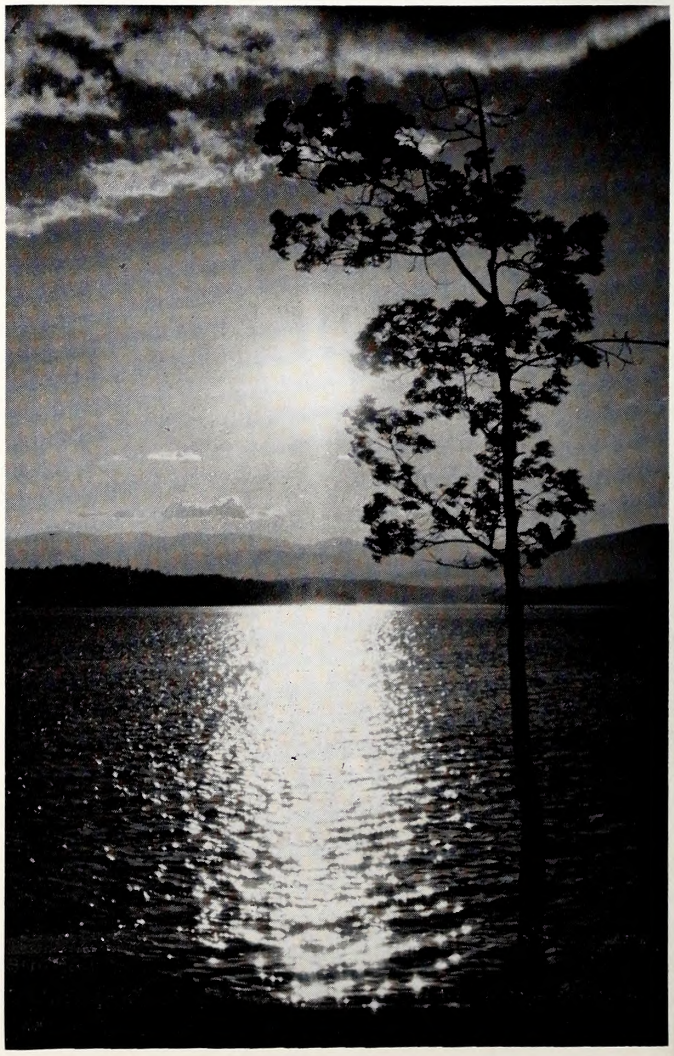
A wiggling hook full of worms dropped right at the edge of the drift usually gets a customer. A medium-weight spinning rod is fine for this, since less commotion arises by pitching the bait in from a distance. The panfishing may end abruptly when a three-pound smallmouth gulps the gob of worms!

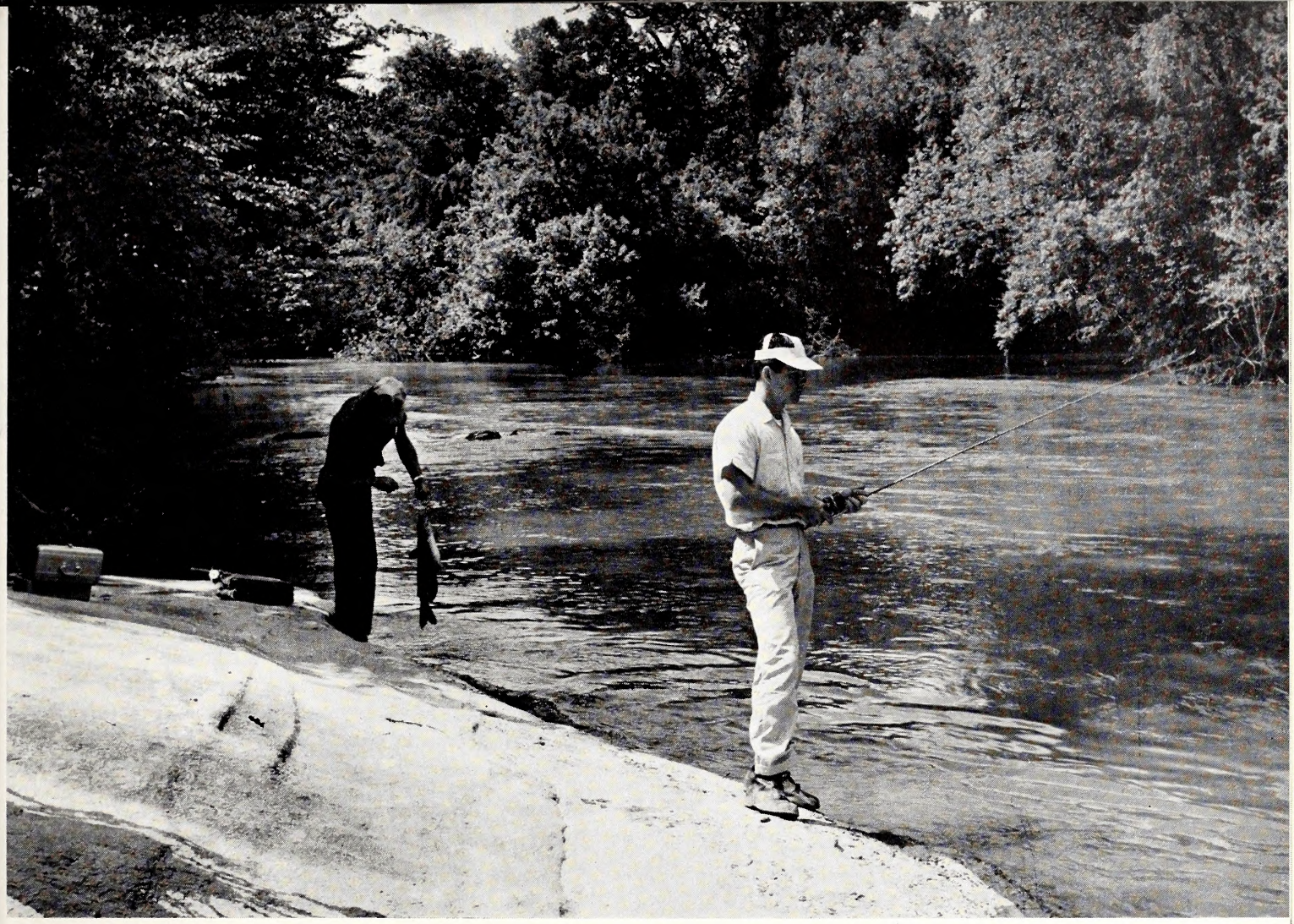
A bunch of submerged stumps and brush in 15 to 20 feet of water may provide you with a beautiful string of crappies. No doubt here that live minnows a couple of inches long are best; but artificials such as tiny white jigs, wobbling plugs and spinners may turn the trick. Once you latch on to one crappie chances are that others will follow from the same spot. Be extra careful how you anchor (if anchor you must). Drifting ever so slowly in a light breeze is ideal.

Robin, rockbass, and sometimes warmouth and yellow or raccoon perch succumb to a worm-baited hook or a tiny spinner in the cool waters of the highland lakes. It may seem that you've come a long way to catch stuff you could have pulled from the farm pond back home, but the surroundings create an atmosphere that certainly you couldn't duplicate. And after all, it's vacation fishing, and good fishing at that.

Your angling day may have to start at sundown and extend into the wee hours of the morning. Try surface lures after dark.

Photo by Jack Dermid

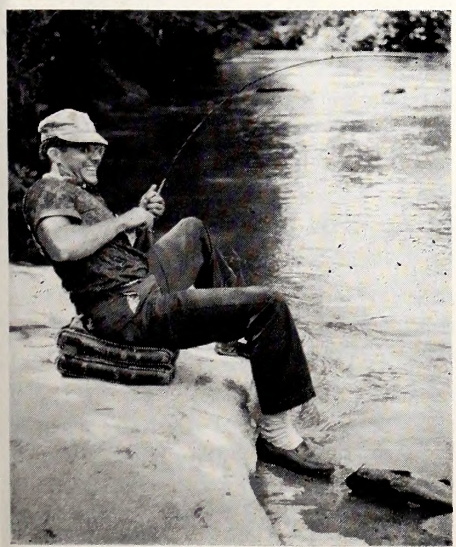




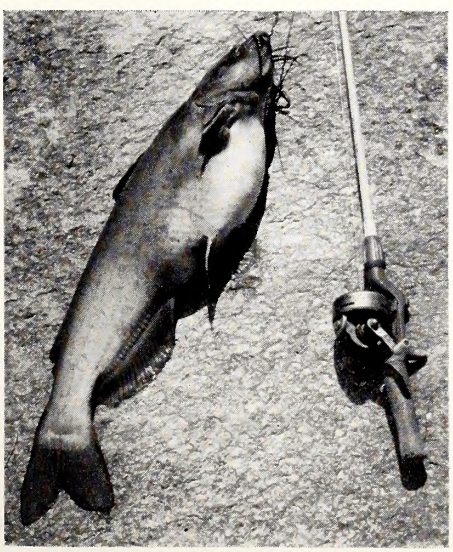
Big Fish — Great Sport

Photo Short by Jack Dermid

Jesse Wilkinson knows from experience what a big cat can do with light tackle.



Many anglers are overlooking the sport and good eating non-game fish can offer.



ONE day this summer, State College students Ed Edwards (right above) and Jesse Wilkinson went fishing in the Neuse River just above the bridge on Highway 64. Edwards was using a spinning rod and Wilkinson a light casting outfit. Both were using the same bait: a big wad of chicken intestines.

Five minutes after they cast their lines into the Neuse, Edwards had a strike to end all strikes. His rod bent nearly double, and the line disappeared from the reel at an alarming rate. But the fish turned; Edwards took up the slack and in time landed a channel catfish that tipped the scales between 8 and 10 pounds.

Before Edwards had his cat on a string, Wilkinson almost had his rod jerked from his hands as another finny monster tore away with his bait. Soon the fish, a channel cat of equal size, was landed.

These men had just enjoyed fishing thrills that would be hard to beat anywhere. They were taking advantage of the great sport that rough fish can provide.

NEW DEAL for Dove Hunting

by Donald J. Hankla
Leader, Upland Game Program

THIS year, for the first time in North Carolina, dove hunting privileges are being offered to hunters free of charge on areas managed specifically for doves. Only a valid North Carolina hunting license is required. The Wildlife Resources Commission has just embarked on this new program, which should be of considerable interest to small game hunters. At a recent meeting the Commission adopted regulations setting up ten mourning dove management areas.

Areas chosen for establishment are located on privately-owned lands near some of the larger cities and towns in the state where there has been a great amount of interest in small game hunting. Directional signs will be placed on roads leading to the areas. See the accompanying map for locations.

The Commission has entered into agreements with landowners for the dove hunting rights on their farms for the current season. Landowners agreed to permit the Commission to restrict hunting to designated days, to permit the Commission to plant 10 acres of browntop millet for dove food, and to permit sportsmen free access for the purpose of hunting doves.

Why Management Areas for Doves?

While this project is in the nature of an experiment, management areas for doves appear to be practical because doves are migratory. They shift southward in the fall and northward in late winter. Experience in North Carolina has shown that doves tend to concentrate for a short time during the migration period. As some birds move out or are killed, others move in to replace them, thus providing sustained dove shooting for several weeks. Doves are attracted by the normal growing and harvesting of certain agricultural crops which they prefer as food.

Although doves can be temporarily concentrated, they cannot be permanently stockpiled. Commission biologists have found that nearly 75 percent of all North Carolina doves die from various causes each year. Hunting accounts for between 6 and 19 percent of these annual losses. The establishment of dove management areas may possibly enable hunters to harvest a few more birds than would normally be taken. This can be done with a maximum of safety to the dove population since at present the hunter accounts for less than one of every four birds that are due to die anyway before the breeding season next year.

How Many Hunters Can Be Accommodated?

There will be no quota on the number of hunters permitted to enter and hunt on any area. It is planned that hunters will park in designated parking areas and walk about until they find a suitable shooting stand. We expect that all who participate in these public dove hunts will be true sportsmen and choose shooting stands at safe distances from each other. The sizes of the management areas vary from 40 to 756 acres. The larger the area the more hunters that can be safely accommodated.

Responsibility of Hunters

Assumption of Risk: All persons who hunt on dove management areas so designated by the Wildlife Resources Commission do so with the permission of the landowner under agreement with the Commission; however, all persons exercising hunting privileges on such areas must do so at their own risk, and neither the Wildlife Resources Commission nor the landowner assumes any liability for any injury or damage to any person or property resulting from any accident or the act of any other person.

Liability for Damage: The landowner's permission to hunt on a designated dove management area is limited to that and reasonably related activities; such permission does not relieve any person from liability for negligent or intentional injury or damage to persons or property while engaged in such permitted activities.

For reasons of safety no hunting will be permitt-

ed within 200 yards of any occupied dwelling house on or adjacent to dove management areas. In addition, sections normally occupied by livestock will be closed to dove hunting and posted with appropriate signs.

No Hunting Permit Required

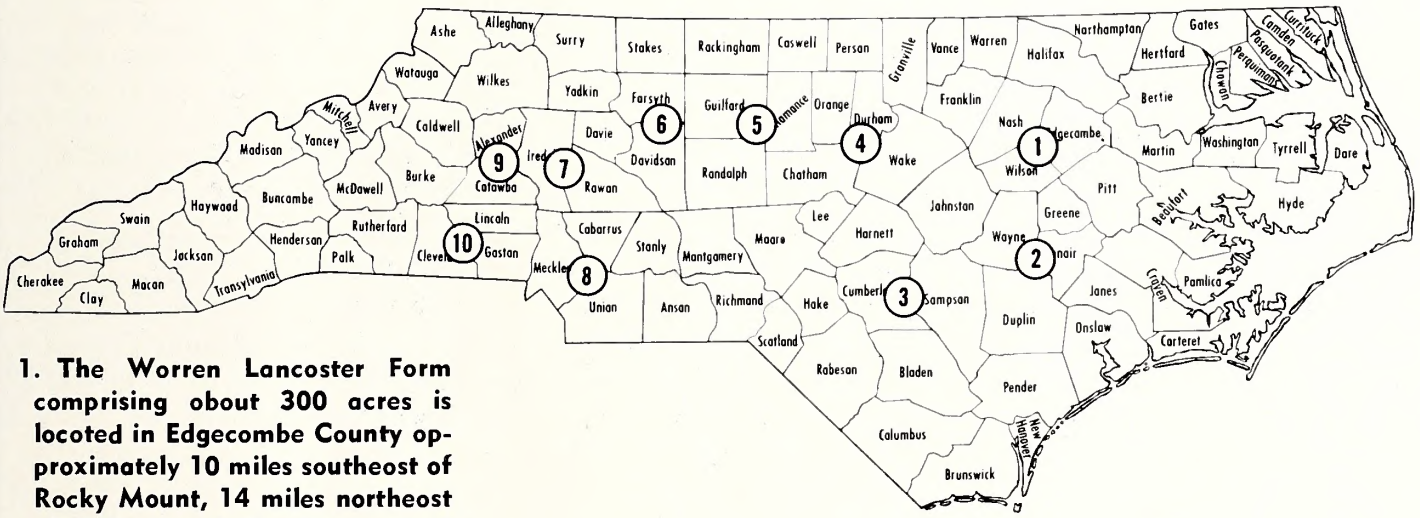
No special hunting license or fee other than the regular State hunting license will be required in order to hunt on these dove management areas.

Seosons and Bog Limits

Public dove hunting on dove management areas will be permitted from noon until sunset on each Wednesday and Saturday throughout the open season as prescribed by the United States Fish and Wildlife Service. Hunting is restricted to Wednesdays and Saturdays as a precaution against "burning the doves out" of a particular area. Bag and possession limits will be the same as those prescribed in the state-wide regulations.

Can This New Program be Successful?

This is a new idea in small game management. Its success will depend on the dove hunter. If the hunter will respect the rights of the landowner and his fellow hunters, dove management areas can be a great success. If on the contrary the hunter disregards the rights of the landowner, damages and destroys his property and abuses his fellow hunters, the program of dove management areas on private lands will be short-lived. The outcome of this experimental program depends on you, the sportsman.



1. The Worren Lancoster Form comprising obout 300 acres is locoted in Edgecombe County opproximately 10 miles southeost of Rocky Mount, 14 miles northeost of Wilson ond 2 miles east of Temperonce Holl Church neor the Edgecombe - Wilson county line.

2. The Eorl W. Kinsey Form comprising 155 ocres is locoted in Lenoir County obout 14 miles west of Kinston, 11 miles southeast of Goldsboro, ond 4 miles south of LoGronge on County Route No. 1002 near the Lenoir-Wayne county line.

3. The J. H. Hubbord Form comprising 114 ocres of lond is locoted in Cumberlond County obout 10 miles eost of Foyetteville ond 2 miles north of the town of Stedmon on the Stedmon-Wode rood.

4. The Preston Fowler, Jr. form comprising 185 ocres of lond is located in Durhom County obout 7 miles southwest of Durhom ond 5 miles eost of Chopel Hill 1 mile south of N. C. Highwoy No. 54 on the Forrington Rood.

5. The Guilford County Form comprising 756 acres of lond is located in Guilford ond Alomonce counties obout 10 miles eost of Greensboro, 6 miles northwest of Burlington ond 2 miles north of Gibsonville.

6. The Neil Hine Farm comprising 135 acres of land is locoted in Dovidson County obout 10 miles south of Winston-Solem, 16 miles northwest of High Point and 12 miles northeost of Lexington, on the Gumtree Rood obout 2 miles southwest of N. C. Highwoy No. 109.

7. The Bill Beord Form comprising 77 acres of lond is locoted in Iredell County obout 8 miles eost of Statesville, 12 miles west of Solisbury ond 2 miles northeast of Elmwood.

8. The Roy Stornes Farm comprising 155 acres of lond is locoted in Mecklenburg County about 13 miles east of Charlotte and 4 miles north of Mint Hill on N. C. Highwoy No. 27, .2 of o mile west of the junction of N. C. Highwoy No. 27 and N. C. Highwoy No. 51.

9. The Horry L. Herman Farm comprising 40 ocres of land is located in Cotawba County obout 3 miles west of Conover and 5 miles eost of Hickory.

10. The D. Russell Stroupe Form comprising 175 acres of land is locoted in Goston County 8 miles northwest of Gastonio, 16 miles northeost of Shelby ond 6 miles south of Cherryville.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Hunting and Combination Hunting-Fishing Licenses Due

If you have been using a 1959-60 hunting license or combination hunting-fishing license, it expired at midnight July 31. New licenses are now available at all license dealers, as are copies of the 1960-61 hunting and trapping regulations.

Doe Hunt Request Deadline August 12

Regulations require that public requests for establishment of doe hunt areas and dates be filed with the Wildlife Resources Commission not later than August 12. These requests should be in writing and should prescribe the boundaries of the area proposed for such a hunt. Each proposed area will be examined by the Commission's field biologists and if the request appears justified it will be scheduled for consideration at a public hearing not later than the week of September 5. Final decision of the Commission in regard to establishment of the requested doe season will be announced not later than the week of September 26. In those places where a doe season is announced, archers will be permitted to take anterless deer during the last six days of their state-wide 18 day pre-season. The anterless deer season for gunners will be during the week of December 12.

Commission to Meet At Nags Head

In keeping with its policy of holding its meetings in various sections of the State, the Wildlife Resources Commission will hold its August meeting at Nags Head on the 14th and 15th. Hotel Carolinian will be headquarters for the meeting.

Managed Hunt Regulations Available

Regulations and complete information regarding big and small game hunts on North Carolina's wildlife management areas are available in booklet form from the Wildlife Resources Commission, Box 2919, Raleigh. A change has been made regarding reservations for blinds at Lake Mattamuskeet. This year applications for blinds will be processed at a public drawing to be held at the Courthouse, Swanquarter at 9:00 a.m. on September 30. Applications for blinds will be available as soon as the 1960-1961 waterfowl seasons have been announced by the U. S. Fish and Wildlife Service.

The spider crab, whose long fuzzy limbs give it the look of a frightening monster, is actually a shy and retiring scavenger who grows barnacles and algae on his back for concealment. Haunting the muddy shores and flats, the spider crab is found from Nova Scotia to Bermuda. He may be picked up safely.

Nature's almost infinite variety of animal life is displayed at every extreme of habitat, but nowhere is it revealed so abundantly as. . .

JUST BEYOND THE TIDE

Photo Feature by Jim Lee

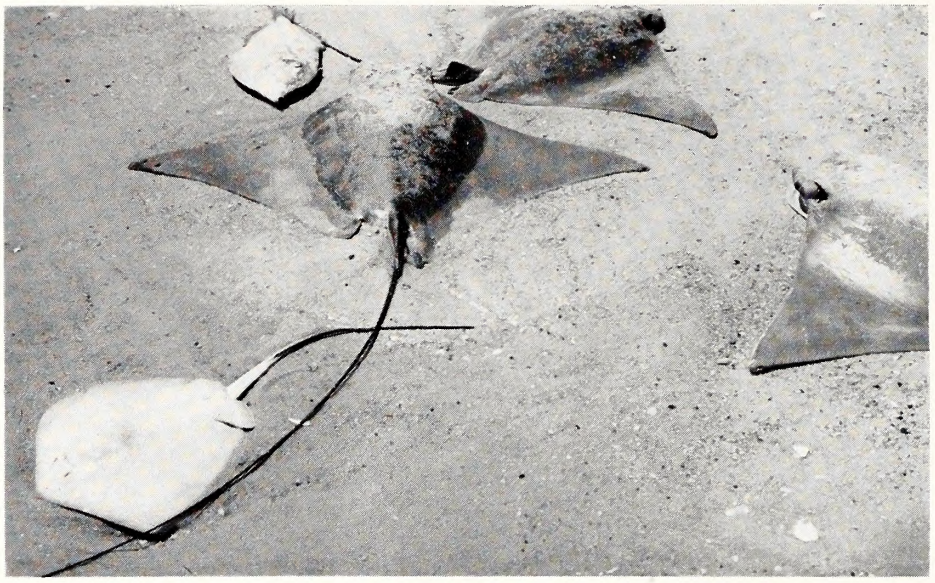
BEACHCOMBING holds a fascination for every lover of the outdoors—whether you be an occasional visitor seeking a souvenir or a sun-bronzed collector who knows every shell by name. Shells are not the only relics of life in the sea to be washed up on the beach; you may find fish, crabs, skates and other animals left behind by the receding tide.

The astounding variety of forms is vividly demonstrated when commercial fishermen bring their haul nets to the beach. Sweeping out a hundred yards or more, they trap in their nets many strange creatures that lurk just beyond the tide. Since most have little or no commercial value, they are left behind for the gulls and other scavengers of the seashore.

As you pick through the debris left by the netters, you will find many animals that show special adaptation to their life in the surf. The fuzzy spider crab with his almost harmless claws, the ridiculous fool-fish, the treacherous skates and rays, the inflated spiny toadfish—all show some special means of defending themselves or obtaining food.

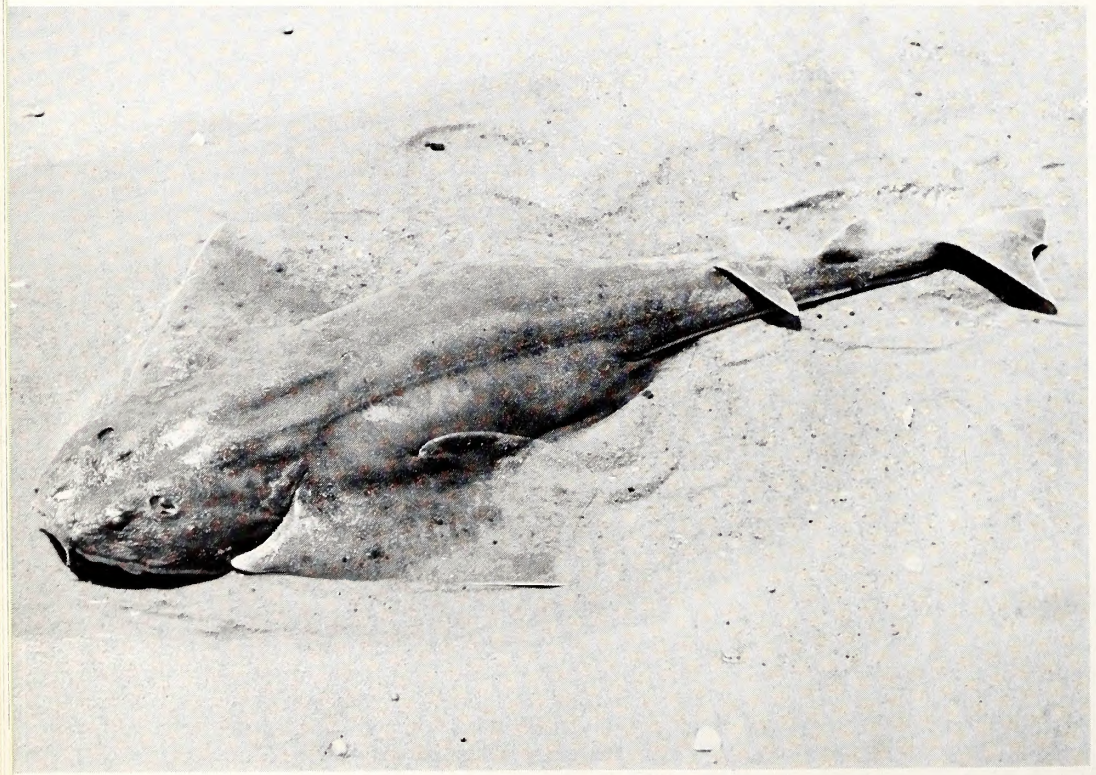
Unless you are prepared for some tedious work, preserving these animals had best be forgotten. But you can look, and learn, and wonder. Each season offers a different variety of animals in the surf, and if you follow the netters over a year you will have a unique view of the passing parade of wildlife that lives just beyond the tide.

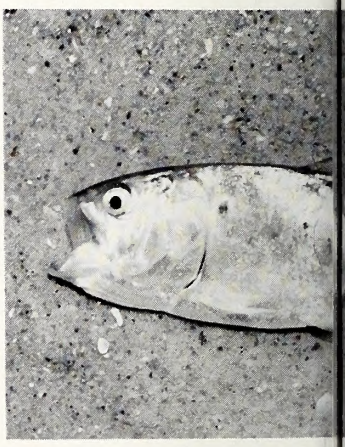
JUST BEYOND THE TIDE



Three cow-nosed rays lie on the beach
lower left, white belly gleaming, is a
cow-nosed rays, with spreads up to
barbed spines which may be as venor
well-known barb. The sting of the cow
at the base of his long slender tail. At

The monkfish is a true shark, but in appearance is half way between the sharks and rays. Equipped with a small sharp snout, he lives mostly on shellfish. The monkfish averages four feet, and sometimes reaches eight feet in length. The coarse-grained flesh is edible but not prized. Unwary fishermen have been slashed by his sharp teeth. The only member of his order found on our coast, he is widely distributed but is not plentiful.





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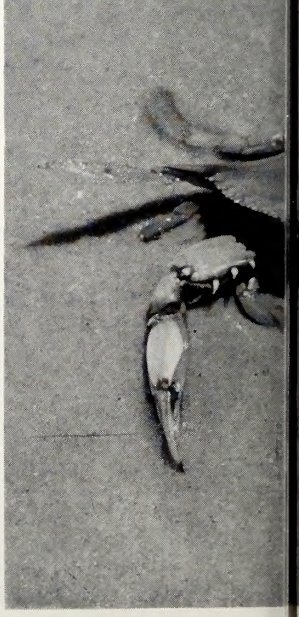

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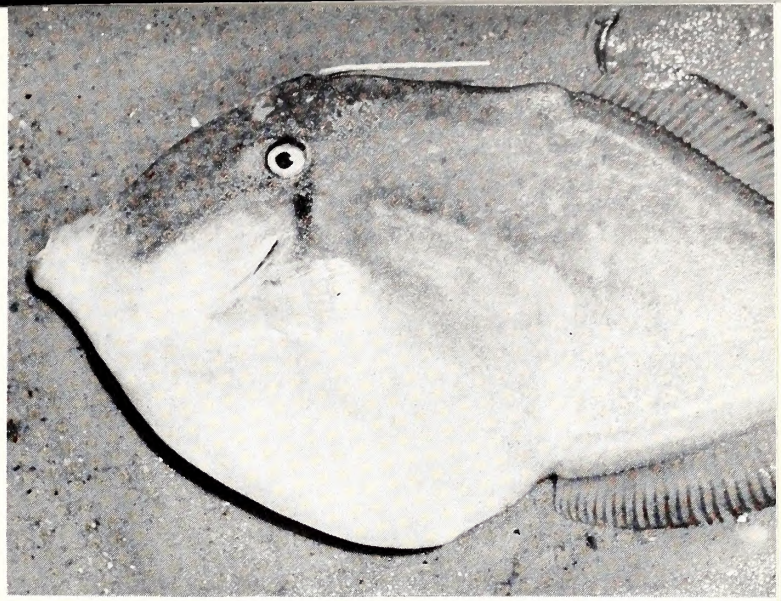

The fool-fish is aptly named for his stupid appearance, and fishermen who have found him fumbling around in a net after all other fish have escaped consider him as stupid as he looks. Because of a sandpaper-like skin, he is also known as the file-fish. Reaching a length of two feet, he lives on marine plants.

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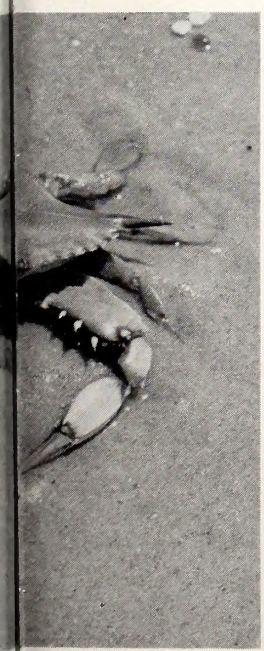


Commercial haul-netters pick through their nets at Coquina Beach at Cape Hatteras National Seashore Recreational Area. In this haul they obtained some 2,500 pounds of food fish, consisting of mullet, mackerel, bluefish and others. Commercial haul netting reaches its peak during the autumn months.

JUST BEYOND THE TIDE

Nature's bounty lies tangled in the net waiting for the fishermen to pick through their catch. Nets are either set offshore over night or are pulled around a school seen passing off the beach. Modern haul-netters use farm tractors to pull in nets.

IF you want to save some of the fish and crabs that you find, there are methods of preserving them in display jars. Two preservative solutions are commonly used, alcohol and formaldehyde. Both have disadvantages but either may be used in an emergency. Another method does not preserve the animal himself, but only his shape.

Formaldehyde, an embalming fluid, may be used to preserve some specimens. You may get good results with crabs by injecting the body cavities and claws with a hypodermic needle filled with the concentrated solution and then soaking the animal in a dilute solution. After a few days the tissues will be hardened and the animal may be dried in the sun and then shellacked.

Grain alcohol is preferred for preserving animals for a long period in jars. The alcohol should be 70% ethyl or grain alcohol rather than methyl. Plastic caps will not rust and are better than the usual metal caps.

Plaster casts may be made of fish, using dental or molding plaster in an open box. Place the fish immediately in the wet plaster deep enough so that some overlaps. After the paster has set, remove the fish and slowly fill the mold with liquid latex, brushing on one coat at a time. When the cast is full and dry, remove and paint with textile colors. This will give you a perfect model of the fish, and is less time-consuming than mounting the actual skin.

A clean-up squad soon picks the beach clean again, as flocks of laughing gulls swarm the beach behind the fishermen. These graceful scavengers carry away all but the large fish and rays, which the fishermen themselves throw back into the water.

Girl Scout Conservation Workshop

by Mrs. S. D. Dysart and Mrs. Theodore J. Grant

"Tongues in trees,
Books in running brooks,
Sermons in stones
Good in everything"

THE famous and beautiful words of Shakespeare came alive last spring at a Girl Scout conservation workshop held at Blue Ridge Assembly in Black Mountain. Forty Girl Scout adult-leaders and senior Girl Scouts devoted three stimulating days to learning more about conservation, the interdependence of our natural resources upon each other, and their own responsibilities in safeguarding them.

The group listened to specialists on soil, waters, forests, and wildlife. Then they went on field trips to see the things they had learned. They saw the growth rings of trees, felt the richness of good topsoil, and learned to call birds by name. During the workshop, the out-of-doors took on a new meaning to both leaders and scouts and they attained a deeper appreciation for the world around them.

The conservation lessons the scouts learned attending the workshop will be taken back to their own troops and shared with others. They will teach the conservation story themselves. The forty adult leaders and senior scouts were individuals selected for that important job. They came from five North Carolina Girl Scout councils covering an area from Greensboro to Murphy.

Wildlife Commission education representatives conducted programs for the first evening. Lunette Barber set the tone of the workshop with her discussion of the inter-relationships of our natural resources and their significance to the Girl Scout program. Then, William Hamnett prepared the group for an early morning field trip by showing beautiful colored slides of wildlife of the mountains. His field trips opened the eyes of the participants to the wealth of natural history to be found everywhere.

Conservation of our forests was emphasized by John Gilliam, extension forester from North Carolina State College. A trip into the woods surrounding Blue Ridge helped the participants learn how to identify trees and estimate their age.

Stewardship of our country's soil and water was the theme of the presentation of Jack King and Ormund Williams. Retired geologist from Morganton, Dr. E. O. Randolph, displayed an outstanding exhibit of rocks and minerals found in North Carolina.

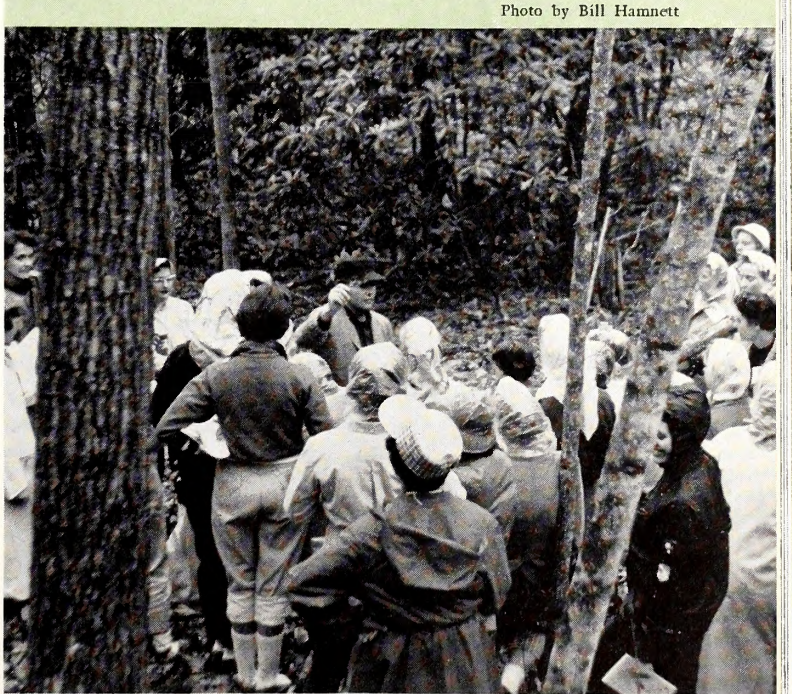
Handicraft is a teaching medium welcomed and enjoyed by all ages. Mrs. J. W. Chalfant of Raleigh demonstrated the use of natural materials in making such items as dry arrangements, jewelry and leaf paintings. She stressed the importance of keeping collections within the bounds of good conservation.

Interspersed between workshop sessions, Virginia Gregory of the North Carolina Recreation Commission led the group in games and songs. Planned and carried out under her direction, the Sunday morning May Day devotional service on the steps of Lee Hall was inspirational and conveyed to all our responsibilities as stewards of our God-given natural resources.

The workshop was planned by Mrs. S. D. Dysart, a member of the Girl Scout Juliette Low Region VI Committee, with the assistance of a capable committee and the guidance of Mrs. Theodore J. Grant of Atlanta, member of the Girl Scout National Field Staff.

During the workshop, classwork was followed by guided field trips where the participants could see what they had learned.

Photo by Bill Hamnett



CONTROLLING
MUSKRATS IN FARM PONDS

by Kenneth A. Wilson
Fur Resources Biologist

THERE are about 40,000 farm ponds in North Carolina, and whether their owners know it or not, the large majority of them contain muskrats. Permanent water, banks suitable for den sites, and easily available food supplies combine to make many farm ponds ideal muskrat habitat.

In most instances, muskrats are inoffensive members of the pond community. They may even contribute to the beauty of a pond or add enjoyment to a fishing trip. But when muskrats become overabundant, raid nearby croplands for food, and tunnel into pond dams, they become a nuisance, even a serious problem.

Muskrats cause the most concern and the most damage to ponds when they dig burrows into dams. Their tunnels enter the face of the dam below water level and extend upward into the dam to dry dens. Dens dug during periods of low water are often extended farther into the dam during periods of high water. When diggings are extensive, they can weaken the dam, cause leaks, or in extreme cases cause the dam to be washed out.

The dams of many Tarheel farm ponds are damaged by muskrats every year, and the Wildlife Resources Commission receives many requests from pond owners for a solution to their problem. This article outlines practical remedies for controlling muskrat damage.

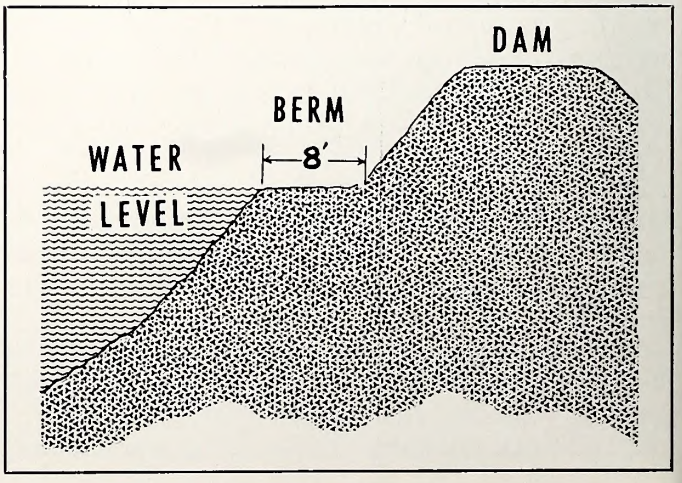
Muskrats burrowing into the dam of this Wake County farm pond resulted in leaks that lowered the water level. Underwater dens are now exposed. Such damage could have been prevented.

Dam Construction

Every one planning to build a farm pond should consider the possibility of a muskrat infestation from the beginning and construct the dam accordingly. Muskrats prefer steep slopes for digging their dens, and a dam with a gently sloping water side is not too attractive to them. The water side of a dam should be constructed with a slope ratio of at least

The possibility of muskrat damage should be considered before dam construction is begun. A simple berm provides good insurance against burrowing at surprisingly little extra cost.

Sketch by Duane Raver



3:1—three feet of horizontal distance for each foot of rise.

One of the better means of preventing muskrat damage is to construct a dam with a berm. A berm (see illustration) is level shelf of earth about 8 to 10 feet wide projecting from the face of the dam into the pond at water level. As well as creating an effective barrier against muskrats, a berm strengthens the dam and retards the eroding action of waves. Surprisingly, berms add very little to cost of pond construction.

Habitat Control

Dams without berms can be protected against muskrats by laying poultry wire (1½-inch mesh) or welded wire fencing 4 to 6 feet wide along the pond side. Arrange the wire so that one foot lies above normal water level and rest below the surface. Fasten the lower and upper sides of the fencing securely with wooden pegs. To retard rusting, apply asphalt, tar, or a similar protective material to the wire.

A two-foot layer of coarse gravel or small stones placed 2 or 3 feet above and below water level is another method of discouraging muskrats from tunneling into dams. The loose material will shift and fill in holes as fast as they are dug.

Dams already damaged by muskrats can be protected from additional burrowing by placing vertical barriers within the dike. Use asbestos-cement sheets, when available. If they are not available, creosoted inch-thick pine boards driven into the dike to three feet below pond water level are recommended.

Shorelines of dams that are maintained clear of dense vegetation make a less attractive place for muskrats to dig. Removal of cattails and other foods in a pond will reduce populations and in some instances will cause all muskrats to leave.

Crops near a pond may be protected from damage by stringing an electric wire around the field nearest the pond. Best results are obtained when the wire is placed 2 or 3 inches above the surface of the ground.

Muskrats are normally interesting and inoffensive members of the pond community. In many instances, trapping during the open season will control them and pay a cash dividend besides.

Photo by Kenneth Wilson

Chemical Control

Repellents like calcium carbide, naphthalene flakes, and mothballs are effective in temporarily ridding an embankment of muskrats. Preparatory to applying the chemicals, drive holes with a crowbar or pipe 2 to 4 feet apart along the entire length of the dam. These holes should be placed about two feet back from the shoreline and extend from 1 to 2 feet below water level. Place about five ounces of chemicals into each hole; then fill the hole with dirt. The fumes of the repellent will penetrate the soil and drive the muskrats out. Chemicals are also effective when placed in occupied dens, and the same procedures should be used. To keep muskrats out of dams the year round, repeat the treatments every 2 or 3 months.

Trapping

An effective and economical way of controlling muskrats in farm ponds is by trapping. In fact, ponds in North Carolina yield thousands of dollars worth of pelts each year. Muskrats trapped during the legal trapping season not only compensate the landowner for the trouble caused by them, but provide interesting and healthy recreation. The pelts of animals killed out-of-season have no commercial value.

Landowners who do not have time to trap can help some local boy or girl make some extra money by allowing them to remove muskrats from their farm ponds.

Muskrats in general are easy to trap. Use stop-loss-type traps in shallow water and number 1 and 1½ traps in deep water where muskrats will readily drown. This will prevent trapped animals from escaping. Place the traps in muskrat trails, on floating logs, at feeding areas and scat posts, and at the base of slides. Stake the chain of all traps firmly and where possible the stake should be located in at least a foot of water.

The new Conibear trap that kills instantly is especially effective when placed at the entrance of a burrow or den. It can also be used as a bait set by placing apple or corn on the trigger bar. Conibear traps and steel traps can be purchased at most hardware stores. For more instructions on how to trap, write to the Wildlife Resources Commission, Box 2919, Raleigh for their bulletin entitled *Trapping North Carolina Furbearers.*

When the trapping season is closed and pelts are worthless, troublesome muskrats can be captured alive and transplanted to wild areas where they will not cause damage. Wire traps (9 x 9 x 27 inches in size) with a trigger-operated door are effective when baited with apple or corn. Box traps of the type used to catch rabbits can also be used.

The Skipper

Conducted by Duane Raver

FISHING BOATS ●
FUEL TIPS ●
HANDLING YOUR BOAT ●
QUESTIONS ●

A Boat For Fishing

EVEN with the fantastic upswing in pleasure boating, water skiing, cruising and the like, fishing still holds down a top spot in present-day usage. Of course many outboard rigs lead a double life: a skiing runabout on week ends and a fishing craft a time or two during the week. And often time such a combination is possible; but it likely is a compromise situation at best.

What is a good fishing boat? This question poses as many problems as "what is a good rifle?" First of all, what type of fishing will it be used for? Will big, rough water be encountered often? Is speed a necessity for covering long distances quickly? Do you expect to troll at slow speeds much? How many fishermen do you want to carry? And so on. By nailing down just what types of fishing you expect to be doing most, you narrow the field of boats quickly.

Your first consideration in boat selection must be safety. Fortunately, from the physical standpoint of the boat, this is quite easily achieved. Unless you're headed for miles of open water, a 14-foot boat with width amidships of 50 inches or more and a transom width of 55 inches or more sounds about right. If you already have the motor, be sure that the craft you buy is OBC rated for at least the horsepower of your outboard. An over-powered boat simply helps get you into trouble fast.

A fishing boat is a specialized craft designed for ease of handling and safety. High speed may be secondary in fishing.

Right off the bat you are confronted with the selection of glass, wood or metal as a hull material. Actually the problem isn't as great as it appears. By sticking to a reliable manufacturer and picking the vessel of the dimensions you want, any of the three will give you good, safe service. One has advantages over the other, no matter how you look at it.

Glass is maintenance-free, quiet, but heavy, comparatively slow and pretty expensive. Wood is stable, quiet, comfortable, but requires upkeep, and may be easily damaged. Aluminum is fast, easily carried, moderately priced, but is noisy, bouncy in rough water and may be less "solid" on turns. So which do you want?

Since our objective here is fishing, you may settle on a wood hull, even though painting and upkeep are always with you. But don't sell the other materials short—particularly aluminum—for fishing. You may find that the metal hull isn't nearly as noisy as you thought it would be. At any rate, don't sacrifice safety for any other virtue.

The arrangement of seats, steering wheel, deck, midships "divider" and so forth, should be carefully analyzed. Remember, you will be casting, landing fish, hoisting the anchor, passing the minnow bucket, paddling (maybe) and other things unique with angling. A sport boat may not suit you at all.

Often weight may be a factor to be dealt with and here aluminum could be a real asset.

For example, a 14-footer with plenty of stability will weigh a shade over 200 pounds; a glass hull of similar proportions will easily hit 300 pounds; wood too will be fairly heavy. With less weight to push, a smaller motor will do a better job. An 18-horsepower outboard should be plenty for most inland fishing.

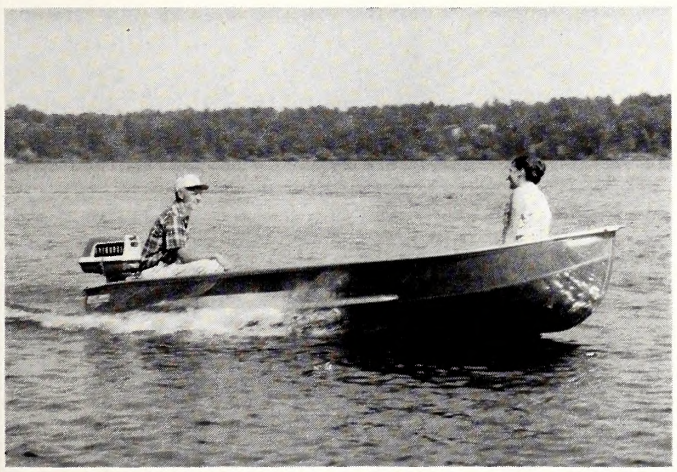
Consider all the angles carefully. Safety is your first aim, fishing second.

Outboarding Tips

BETWEEN outings in your outboard rig always disconnect the fuel line from the gasoline tank in order to seal the tank and retain vapors in the fuel. The Evinrude Boating Foundation reminds outboarders that fuel tanks have a valve at the tank which automatically seals the tank when the fuel line is removed.

Temperatures in the gasoline tank in hot weather may reach 115 to 140 degrees. As some components of gasoline will boil off at those temperatures, as much as 15 per cent of the "high ends" or more volatile gases are lost from an unsealed tank, lowering the running qualities of the fuel. These more volatile gases are also the most easily combustible, and are therefore very important in starting, especially when the engine is cold.

On almost every outboard-powered planing hull there is a maximum economy range that occurs somewhere between the planing speed and the maximum speed of the boat, according to research by the Evinrude Foundation.



Proper trim of your boat should always be kept in mind from a safety standpoint as well as from a fuel economy angle.

Every outboard owner can save on fuel costs by determining as nearly as possible that maximum economy range according to the load he is carrying. A few runs with varied loads will normally allow the owner to determine with fair accuracy the speed at which his boat will get maximum economy in miles per gallon of fuel consumed.

An outboard motor is one of the relatively few machines built to be operated at top speed for hours on end. Some outboard motor manufacturers belonging to OBC run all production model engines for 1,000 hours at full rated horsepower. It's improbable that an automobile engine could last that long under the same conditions. But even with this capability, an outboard will last longer and give better fuel economy if moderate cruising speeds are maintained. A full throttle means a higher fuel bill and likely more frequent trips to the shop.

"How to Handle Your Boat"

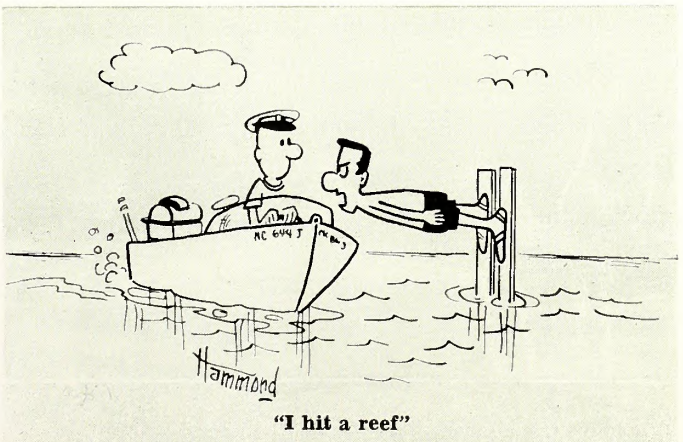
This is the title of an article in the June, 1960, "Outdoor Life" magazine. Joe Harvey helps the beginner or "apprentice" boatman with basic information on maneuvering and mooring power boats under a variety of conditions. Check it for safer boating.

The Question Box

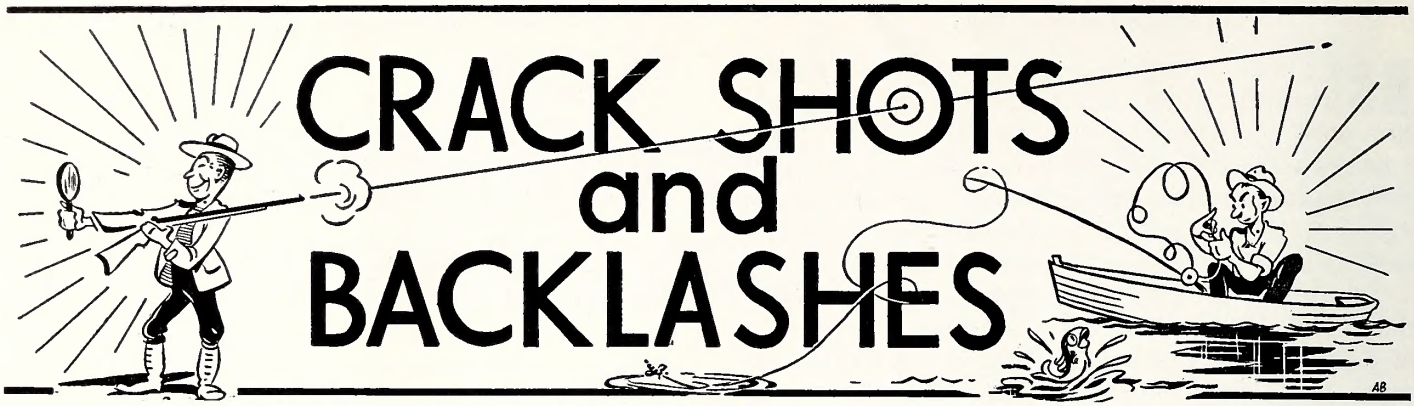
Question: What is my responsibility as a boat operator when my boat is involved in an accident?
Answer: The operator of any *vessel* (i.e. *any* floating device) involved in an accident or collision has three responsibilities: 1. To stop and render to other victims of the accident such assistance as he may without seriously endangering his own vessel, crew or passengers. 2. To give, in writing, his name, address and vessel identification to any person injured in the accident and to the owner of any property damaged in the accident. 3. If the accident results in the death of any person, in an injury causing a person to be incapacitated for more than 72 hours, or in property damage in excess of $10, to make a report of the accident to the North Carolina Wildlife Resources Commission on forms provided by the Commission. These forms are available from any wildlife protector, and must be submitted within ten days after the date of the accident.

Question: What is the minimum sized outboard motorboat which can safely navigate Pamlico Sound?

Answer: This is a real tough one, and the answer involves a lot of unknown weather conditions on this big piece of water. If you could depend on winds of less than five knots (which you can't) and ideal conditions all 'round (again which you can't), a 14-foot boat with a 68-inch beam and plenty of free-board, equipped with a dependable 10-horsepower motor and plenty of gasoline, *could* cross the sound successfully. You would be much safer with something in at least the 16-foot class, preferably with a deck, powered by a 25- to 50-horse motor, and even then weather and water conditions could be severe. Frankly, I wish the question had never come up!



"I hit a reef"



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Charles Elliott, outdoor columnist for the Atlanta *Constitution*, is no arm-chair conservationist. After corresponding with him for several years, we had the pleasure of meeting him recently at a boat dock on Fontana Reservoir. Charlie and a friend had spent three or four days camping on Hazel Creek. Burdened down with backpacks loaded with camping gear and sporting four-day beards, Charlie and his fishing partner were full of praise for Hazel Creek's fabulous angling.

Here's what Charlie had to say when he returned home from this trip. We think Charlie Elliott knows what he's talking about:

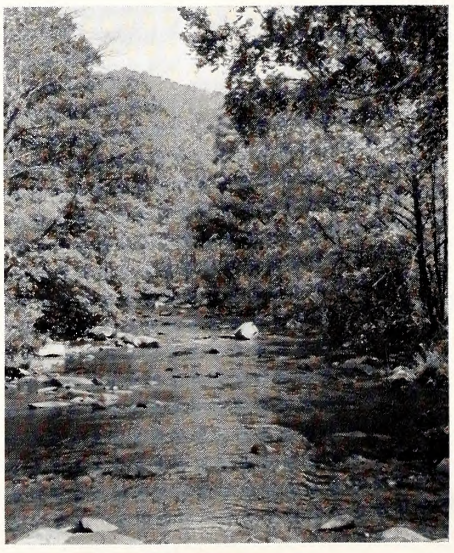
"Most of us have a tender spot in our heart for crusaders—that is, if they're not campaigning for something we are against, or vice versa. Sometimes, of course, the crusading routine is only an act, for personal gain in one way or another. But honestly done, it is usually by a small group of dedicated people who sacrifice personally that an idea or a principle might endure.

"This is especially true of certain outdoor groups who either individually or collectively, are working to preserve at least some parcels of wilderness America.

"In a few short decades, we have grown from an agricultural nation, with tremendous segments of our land untouched by roads, power lines and garbage disposal dumps along the bright streams, to an industrial empire. The creeping paralysis of what we know as modern civilization, has covered up those segments one by one, converting the magnificent stands of virgin timber into lumber, pulpwood and other forest products to feed the insatiable giant, and polluting our cold, clean creeks and rivers with their wastes.

"Today, there are all too few spots left between the oceans where a man can stand alone with himself and his Maker and absorb the strength and the beauty of the living wilderness as a tonic for his soul.

"Charlie Wharton, who teaches in the Biology Department at Georgia State College, told me of a recently organized group known as The Nature Conservancy. The aim of this society is to purchase or accept small wilderness tracts throughout the country and set them up as Living Museums. Already, through donations and purchases, they have placed many thousands of acres in these wild museums, in such states as Missouri, Maryland, Minnesota, Florida and others.



Hazel Creek

"Charlie, one or the representatives of The Nature Conservancy, says that the organization now has an option on a 1,600-acre tract on the side of Standing Indian Mountain, just across the Georgia line in North Carolina, and surrounded by the Nantahala National Forest.

"Some of us believe that at least a small portion of our wilderness should be preserved in its natural state, where it will be free from local politics or political interference in any way. For even the scenic wonders of our land, supposedly safe from exploitation in our National Parks, are not beyond the reach of selfish interests.

"The tourist traps around the nearest and one of the most beautiful of our national wonderlands, the Great Smoky Mountains, are clamoring to have a highway cut through the middle of one of the most primitive regions remaining in the Southern states. They are putting pressure on their congressmen, who in turn are applying the well known screws to the National Park Service, to bisect the entire south slope of the Smokies along the north shore of Fontana Lake with a super-highway, on the basis that the destruction of this remaining wilderness with a multi-million dollar road (out of your pocket and mine), will put a few more dollars into their own pockets from the rental of motel rooms, the sale of meals and Japanese-made trinkets out of their gift shops.

"The Park Service seems to be using every dodge to save this south slope in its primitive conditions, and they are getting a lot of help from the Wilderness Society, The Nature Conservancy

and similar organizations devoted to keeping a remnant of our rock-bound hills and singing streams from mutilation and exploition.

"They deserve all the support we can give them."

Lucretia's Back in Town

DEAR SIRS: I'm looking forward to this fall when the waterfowl season opens again. What would be the proper thing to say if, in carving a duck, it should skid off the platter and into my neighbor's lap? LUCRETIA PLYMPH, WAKE FOREST

Be very courteous, Lucretia. Say, "May I trouble you for that duck?" —Ed.

Blue Jays and Crows

DEAR SIRS: Can you offer any suggestions as to how we can keep the blue jay birds and crows from eating or taking off our pecans? We live in town and have three trees bearing; last fall they got most of the nuts. We love birds and enjoy them on our lawn but not these destructive ones.

I shall greatly appreciate any information you may offer on this. MRS. B. E. LITTLEFIELD, LUMBERTON

DEAR MRS. LITTLEFIELD: The blue jay and crow are omnivorous feeders and they have provoked much controversy over the years as to their relative merit toward mankind and his agricultural problems. Both birds have good points, and many bad points.

These birds have been known to take pecans from trees as you have observed, but never in such numbers as your letter indicates. I am reluctant to say so, but a few blasts from a shotgun will do much to discourage these birds. If you resort to such a measure, I would suggest that you get permission and assistance from the local police as it may be illegal to discharge firearms in the city of Lumberton except in a special case such as yours. A less drastic measure may be lighting a firecracker and tossing it into the tree when the birds are there. You might try hanging strips of aluminum foil from branches of the tree which may deter the action of the jay and the crow.

Wm. L. HAMNETT, WILDLIFE EDUCATION REPRESENTATIVE

New Angle on Bass?

DEAR SIRS: I would appreciate very much if you could throw some light on the following "fish tale."

For years I have heard the old and young fishermen refer to good or poor fishing being due to the fact that the blood was in the tail of the fish or in the case of poor fishing, in the head of the fish. I think in most cases reference was made to the largemouth bass.

On several catches of bass I have noted the apparent excessive amount of blood in the tail of the largemouth.

My question is this: Does this change actually take place and if so during what seasons and how long does the cycle take; are male and female both affected during spawning season only, etc?

Thanking you for your attention and reply. ELLIS FLEMING, MANSON.

None of our biologists has heard of a phenomenon wherein blood concentrating in the head or the tail of fish has any effect on how well fish bite.

There is a bacterial disease called "redfin" that breaks down the tiny capillary blood vessels in the fish's skin, giving a bloodshot appearance to the tail, fins, and lips. This is not usually fatal to otherwise healthy fish, and probably does not affect their biting.

During the summer months natural food is so abundant that fish become more difficult to catch, especially on artificial lures. In some areas folks would have you believe that fish shed their teeth during the summer months. This is supposed to make their mouths sore and the fish stop biting.

Although Arthur Smith of Raleigh and brother Charlie of Knightdale drove a station wagon to Morehead City for their June fishing trip, they had to hire a trailer to bring home their catch of two blue marlin—which together tipped the scales to total a whopping 611 pounds.

Deer Hunting At Uwharrie

DEAR SIRS: I subscribe to the magazine Wildlife and enjoy reading the informative column "Crackshots and Backlashes."

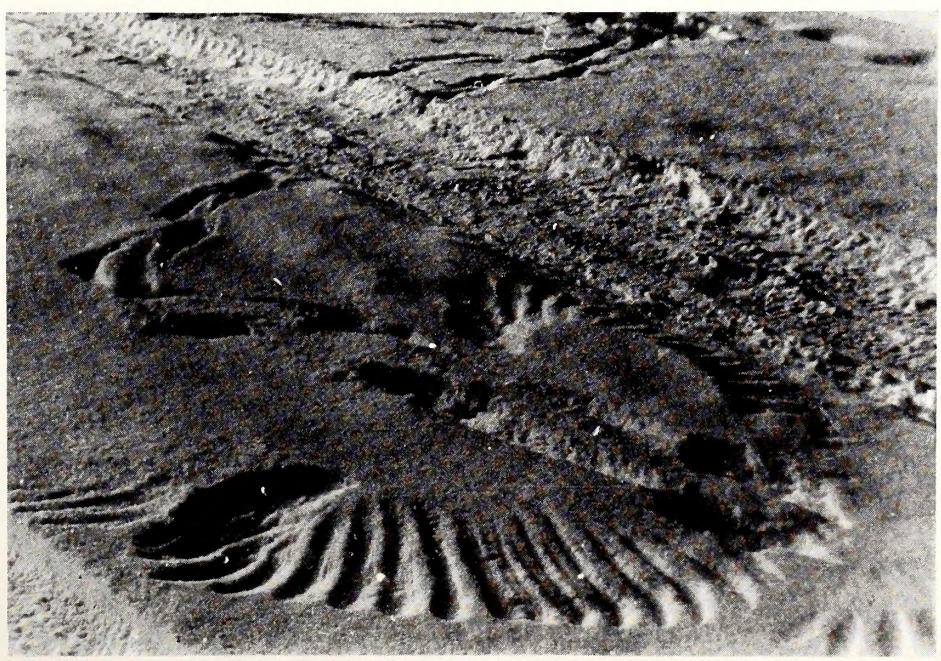
For several years I have hunted deer in the Uwharrie Game Management Area in Montgomery County and would like to ask the following question: Is it legal to hunt deer with rifle or shotgun anywhere in the Uwharrie National Forest outside of the management area provided the statewide county hunting regulations and seasons are observed?

Any information you may have concerning the above question will be appreciated. HERBERT T. McDOWELL, BURLINGTON

The Uwharrie management area involves only about 10,000 acres. Deer may be hunted in surrounding areas in accordance with current hunting regulations. —Ed.

What Is It?

Photographer Doug Bell came upon this graphic snow print in Alaska. Can you decipher the story told in the snow? Between the parallel tracks of a truck is the pattern of an eagle's wings as he pounced on a rabbit.



PROTECTOR OF THE MONTH

Ray A. Overcash

Ray A. Overcash was born on July 29, 1925, in Davidson, Mecklenburg County. He is a graduate of Davidson High School and attended Presbyterian Junior College in Maxton. He is also a graduate of Carolina Business College in Charlotte, and Motive Trade Institute, Atlanta, Georgia. A veteran of World War II, he served 37 months in the U. S. Navy.

Mr. Overcash completed law enforcement training schools conducted by the F.B.I., Southern Pines Police Department, S. B. I., and the State Highway Patrol. He completed three wildlife in-service training schools at the Institute of Government at Chapel Hill, and also completed a course in police pursuit driving. Mr. Overcash was employed on September 15, 1952 as a Wildlife Protector, and was assigned to Moore County. On February 1, 1958, he was promoted to the position of Wildlife Patrolman in District Six.

The son of Mr. and Mrs. W. B. Overcash of Davidson, he is married to the former Margaret Blackwell, and they have one daughter, Ruth Aleece. They are members of Bethesda Presbyterian Church, and live on Maple Street in Aberdeen.

ENFORCEMENT RECORD FOR MAY

HUNTING & FISHING:

Persons checked	40,110
Total prosecutions	704
Total convictions	688
Total cases not guilty	7
Total cases nol prossed	9
Total fines collected	$4,560.65
Total costs collected	$5,430.00

BOATING:

Boats checked	6,494
Total prosecutions	123
Total convictions	119
Total cases not guilty	1
Total cases nol prossed	3
Total fines collected	$ 303.00
Total costs collected	$ 928.70

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commisison or its personnel.

WATER SAFETY DEMONSTRATIONS

Water safety and small boat safety demonstrations provide fishermen, boaters and swimmers an opportunity to learn techniques that might be real life-savers at times. In these pictures are some tips from the American Red Cross, as shown at a small boat demonstration at Kerr Reservoir in June.

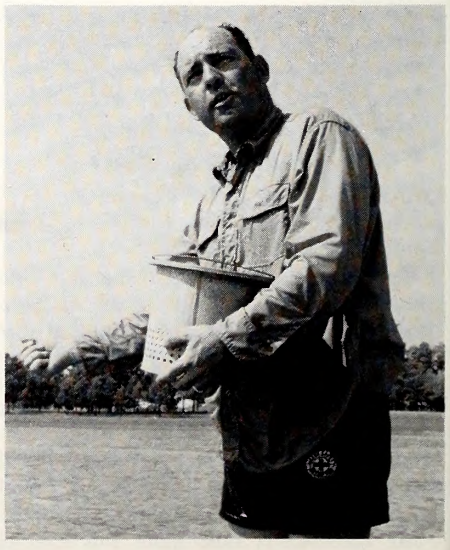
Attended by Wildlife Commission enforcement men as well as interested boaters, the demonstration proved that a means of keeping afloat is often as near as the shirt on your back.

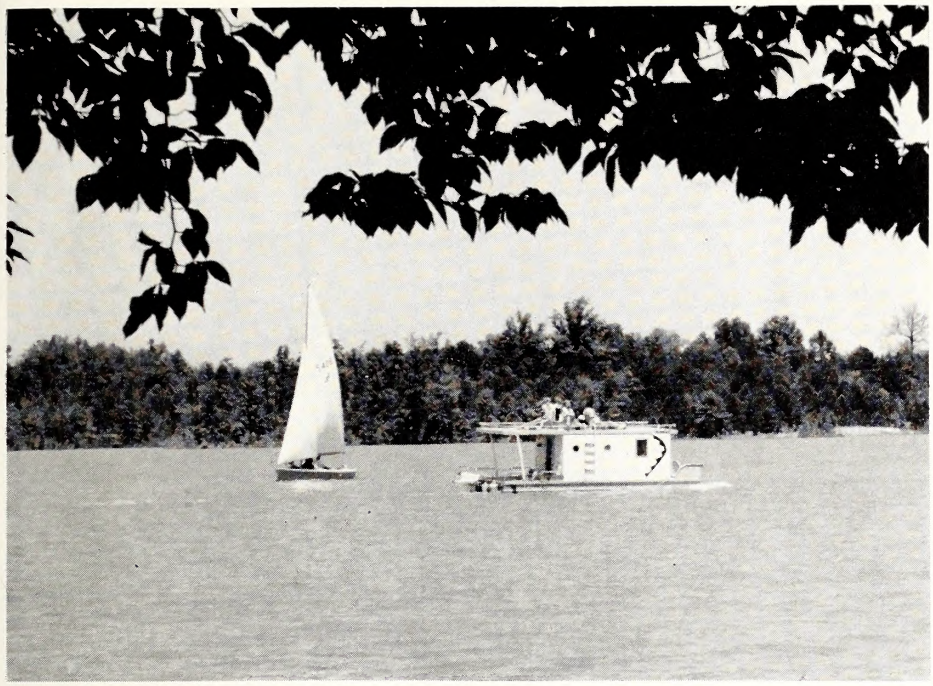
Photos by Jim Lee

If you are wearing long trousers, tie them at the cuffs. By throwing the pants over your head they can be inflated as above.

Above: A long-sleeved shirt can be inflated as a life jacket if buttoned at the collar. Below: Instructor Bill McDonald shows that even a minnow bucket has air space that can support someone until help can arrive. Remember, stay with the boat.

A large group of interested spectators watched the Kerr Reservoir demonstration, sponsored by the Red Cross and the Vance County Rescue Squad. The program was held at Satterwhite Point.





Be kind to your slow-moving friends. Sailboats, houseboats and other hard-to-maneuver craft have the right-of-way over faster craft. Operators of slower boats should reciprocate by avoiding channels favored by faster-moving boats.

Hunter Safety Program

North Carolina is about to embark on a statewide hunter safety training program in cooperation with the National Rifle Association, the N. C. Wildlife Federation and other related groups. To launch the program, the Wildlife Resources Commission passed the following resolution:

WHEREAS the occurrence of hunting accidents in North Carolina has increased over the years, due essentially to the careless handling of firearms, and

WHEREAS the Wildlife Commission recognizes that through its power to establish hunting regulations and its mandate to perpetuate the sport of hunting, it has a moral responsibility to the hunters and other citizens of the State with regard to their safety;

NOW THEREFORE BE IT RESOLVED that the Wildlife Resources Commission, at its meeting in Raleigh June 7, 1960, does hereby institute a hunter safety training program; and

BE IT FURTHER RESOLVED that this program be carried on as follows so that many thousands of adult hunters, and young people who will be the hunters and sportsmen of tomorrow, may have the benefit of training in the safe handling of firearms while hunting.

1. The Commission will cooperate with the National Rifle Association, its affiliated clubs, its Hunter Safety Instructors, and any other organizations or individuals concerned with the safe use of firearms or other weapons for hunting.

2. Personnel of the Commission already qualified as Hunter Safety Instructors (nine wildlife patrolmen, two wildlife education representatives) will train other Commission personnel so that they will be qualified to train volunteer hunting safety instructors; these instructors, in turn, will carry on the actual hunting safety training work with various groups of people.

3. Persons who satisfactorily pass the safety training course will be presented with certificates of same, and appropriate ensignia.

Wood Duck Banding

With the increase of the daily bag limit on wood ducks from one to two birds last season, the Fish and Wildlife Service inaugurated an extensive wood duck banding program to determine what effects the increased kill would have on the population and to learn more about the movements of the species. The Wildlife Resources Commission is cooperating in the study, and nearly 100 wood ducks have been banded in North Carolina this year.

Most Tarheel wood ducks were live-traped for banding, but a few females were caught and banded while in nesting boxes incubating their eggs, a technique that in no way interferes with nesting. One female was captured at Orton Wildlife Refuge near Wilmington last May while sitting on five eggs. She already wore a leg band, and the number was recorded before she was released. A check of banding records revealed that this wood duck was banded five years ago—on May 4, 1955. At that time she was incubating 15 eggs in a nesting box close to the one where she was recaptured. Through banding records it is known that female wood ducks return each year to nest in the vicinity of their origin.

Through the years, this female has probably produced many ducklings in nesting boxes at Orton Refuge. More boxes are needed in other sections of the State, and interested individuals or groups may obtain free plans for constructing them by writing the Wildlife Resources Commission, Box 2919, Raleigh—*Otto Florschutz, Waterfowl Biologist.*

Use this blank to subscribe NOW—$ .50 a year $1.00 for two years. No stamps, please

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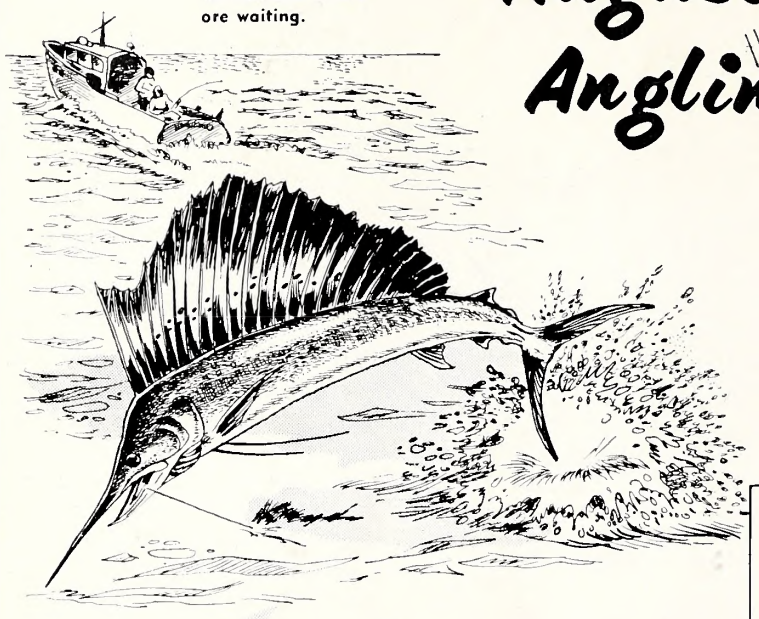
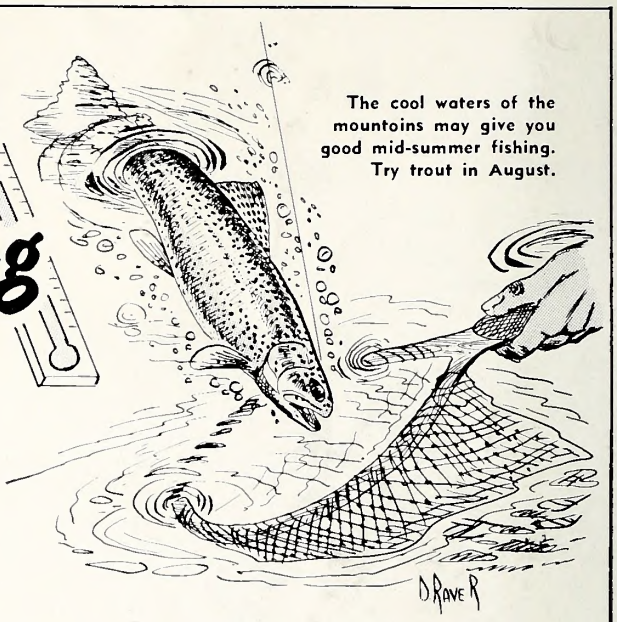
August Angling

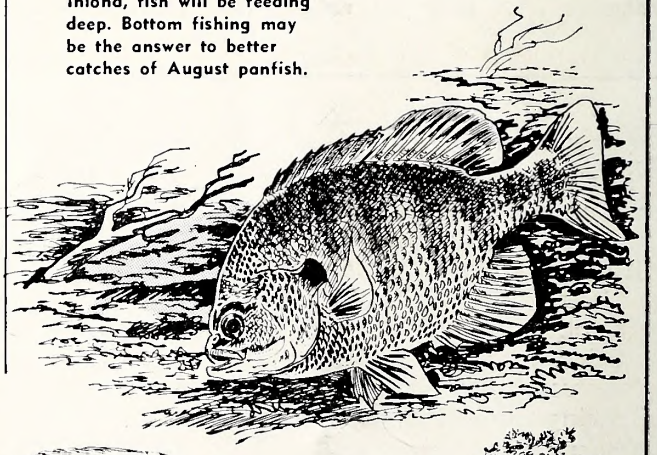
You may have to head for salt water for the best August fishing. Bluefish, amberjack, sailfish and others are waiting.



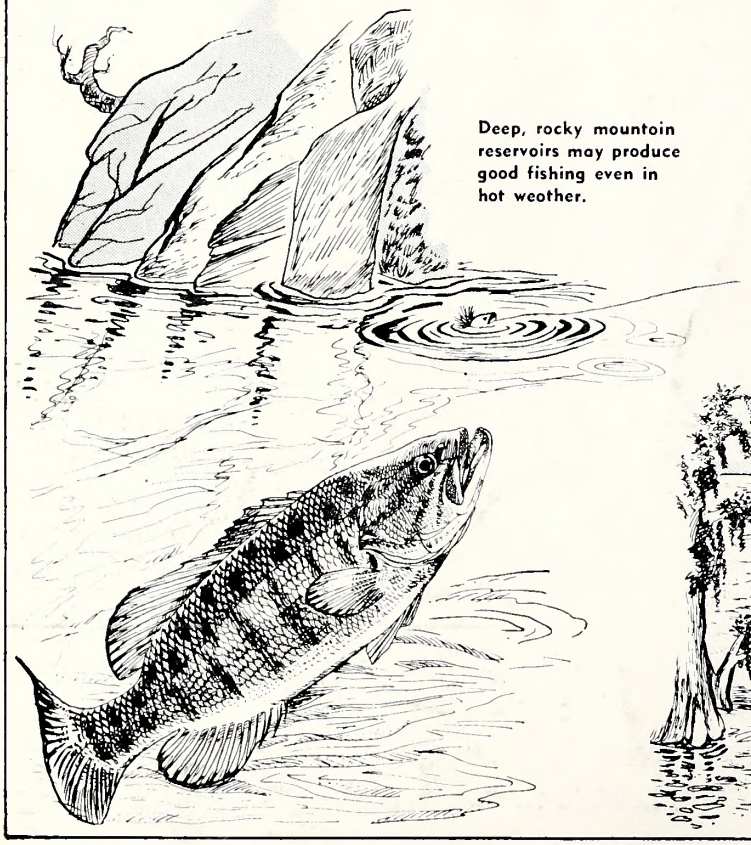
The cool waters of the mountains may give you good mid-summer fishing. Try trout in August.

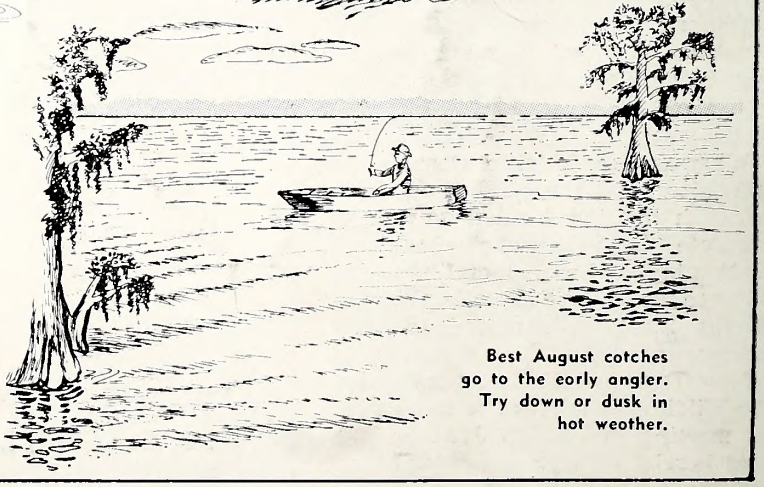


Inland, fish will be feeding deep. Bottom fishing may be the answer to better catches of August panfish.



Deep, rocky mountain reservoirs may produce good fishing even in hot weather.





Best August catches go to the early angler. Try down or dusk in hot weather.

PRINTED BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

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Wildlife in north carolina

ten cents

september 1960

Photo by Jack Dermid

DOUBLE ENJOYMENT

Phil Ellis, commentator on WPTF's "All Outdoors" show, knows how to have his sport and enjoy it too. He is pictured hunting doves in a field of browntop millet at the Sandhills Wildlife Management Area near Hoffman while listening to a football game on his portable radio. The dove season is split into two segments this year: September 10 to October 15 and December 12 to January 14. Shooting hours are from noon until sunset.

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

A summer resident of the Piedmont and Mountain regions of the State, the broad-winged hawk is the smallest of the Buteos or soaring hawks. It is a woodland bird of retiring habits whose peculiar long-drawn whistle is often the only indication of its presence. This species is truly a friend of the farmer and should be given complete protection. It feeds almost exclusively on insects, frogs, snakes, rats, and mice.

September finds the broad-wing migrating southward. The best field marks for this crow-size hawk are the conspicuous black and white tail bands. Watercolor by Richard A. Parks.

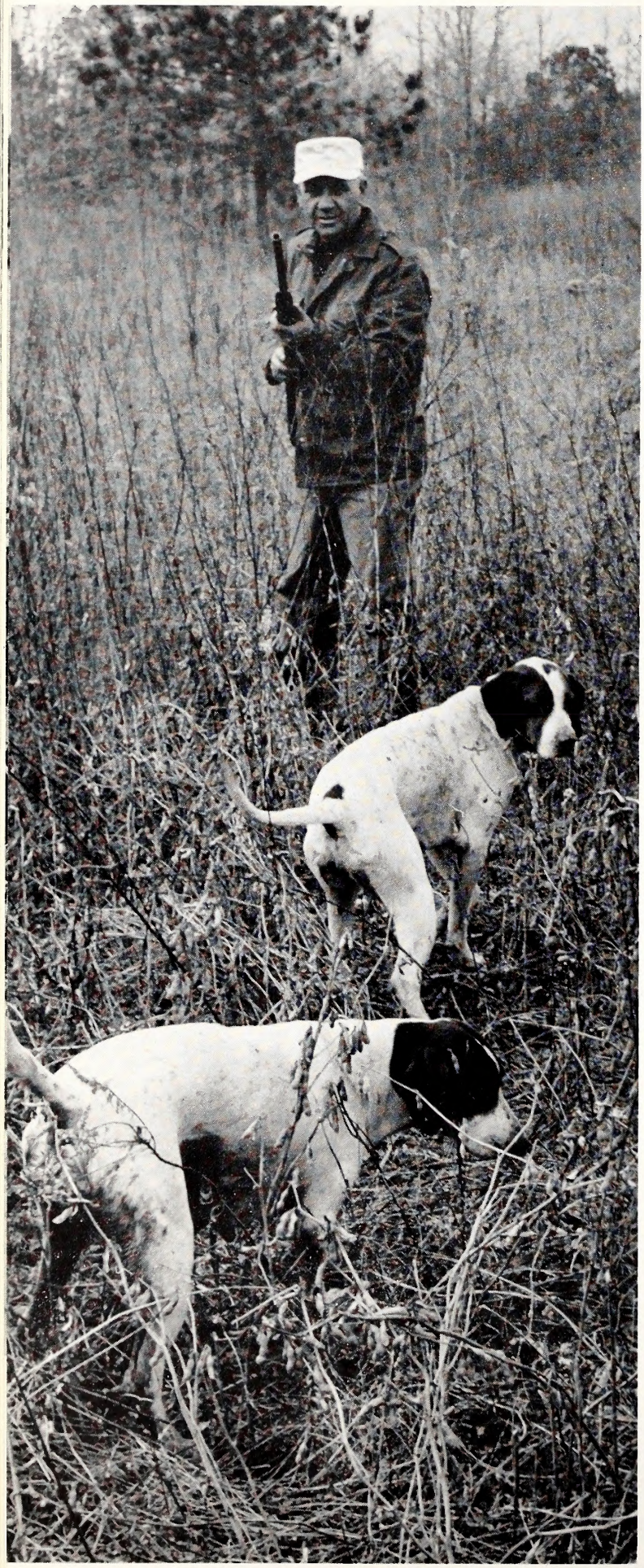
WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.



1960-61

Hunting

AT the outset it should be pointed out that the information given regarding the 1960 - 1961 hunting season is not a prediction. It is simply an evaluation of the prospects facing the hundreds of thousands of nimrods who take to the woods and fields and marshes in quest of game.

Last winter when heavy snow and ice storms blanketed the entire State, very few people would have predicted that hunting during the coming seasons would be very good. Nature, however savage it may be at times, can be mild. It is a pleasure to report, therefore, that the general outlook for game (especially upland game) is excellent.

No attempt will be made here to report specific dates and bag limits. Generally hunting and trapping regulations are available at your license dealer when you buy your license. The seasons on doves, marsh hens, woodcock and Wilson's snipe have already been announced by the U. S. Fish and Wildlife Service, and information on these has been given wide circulation by the Press. As this issue of *Wildlife* goes to press the information on waterfowl had not yet been released by the Service.

Doves

A bumper crop of birds this year is reflected in a two-bird increase in the bag limit, and five more half-days shooting. As usual the dove season will be in two segments, one beginning in September and the other in December; and as usual the best shooting may be expected during the early season. It will be legal to shoot doves over newly planted grain fields this year, and this may be of benefit to dove shooters during the late season.

Marsh Hens

As in years past the shootable supply of sora, rails and gallinules will far exceed hunters' demands. Best time for marsh hen shooting will be with the highest moon and wind tides.

Woodcock

The Fish and Wildlife Service reports a slight decrease in the woodcock supply this year, but the decline was not considered to be severe enough to warrant a reduction in the season and bag limits.

Pointing dogs—an exciting scene that will be repeated many times after opening day. A good quail season is expected in most areas of the State despite last winter's snow and ice.

By Clyde P. Patton
Executive Director

Outlook

An ideal nesting season produced a bumper crop of small game, and hunting prospects for doves, quail, rabbits, and squirrels are excellent this year. Big game hunters will find their chances for bagging a big buck, bear, or boar about the same as last season.

We may expect the same degree of success with woodcock as for last year.

Waterfowl

It appears that waterfowl populations, especially diving ducks, did not recover from last year's unsuccessful nesting season. Do not expect any major changes over last year's season and bag limits.

Deer

Although last winter the deer situation seemed to be somewhat alarming, careful surveys of major deer areas failed to disclose any loss of deer directly attributable to severe weather. It will again be necessary to harvest antlerless deer in some localities this year to keep herds within range carrying capacity.

Bear

Restricted to the forests of the mountain and coastal sections of the State, bear will be in about the same supply as in years past.

Wild Boar

Restricted in range to Cherokee, Clay and Graham counties, wild boar hunting may be expected to be about the same as in years past. Controlled harvest has kept boar at a fairly constant population level.

Raccoon and Opossum

No important change over last year's situation. The 'possum is little sought after, and abundant everywhere. Best 'coon hunting will be found in the eastern half of the State.

Squirrels

A good mast crop means a good squirrel crop. An excellent crop of mast is expected over much of the State this year making the general squirrel outlook good.

Rabbits

Always subject to local population variations, the relative availability of rabbits is difficult to forecast. In most sections, however, the summer crop of rabbits was excellent, and rabbit hunting in general should be better than last year. There will be some localities where the rabbits will be hard to find.

Quail

Heavy snow and ice storms last winter caused more consternation among quail hunters than any other group. Although there was some winter mortality in several areas, an ideal nesting season brought about one of the biggest crops of quail in many years. Reports from throughout North Carolina indicate excellent quail hunting this fall.

Wild Turkey

Little change in the Number One game bird population. The turkey situation may be expected to be about the same as last year.

Ruffed Grouse

A favorable breeding season has brought about a good supply of birds. As in past years the supply of grouse will exceed the demand for these hard-to-hit game birds.

General

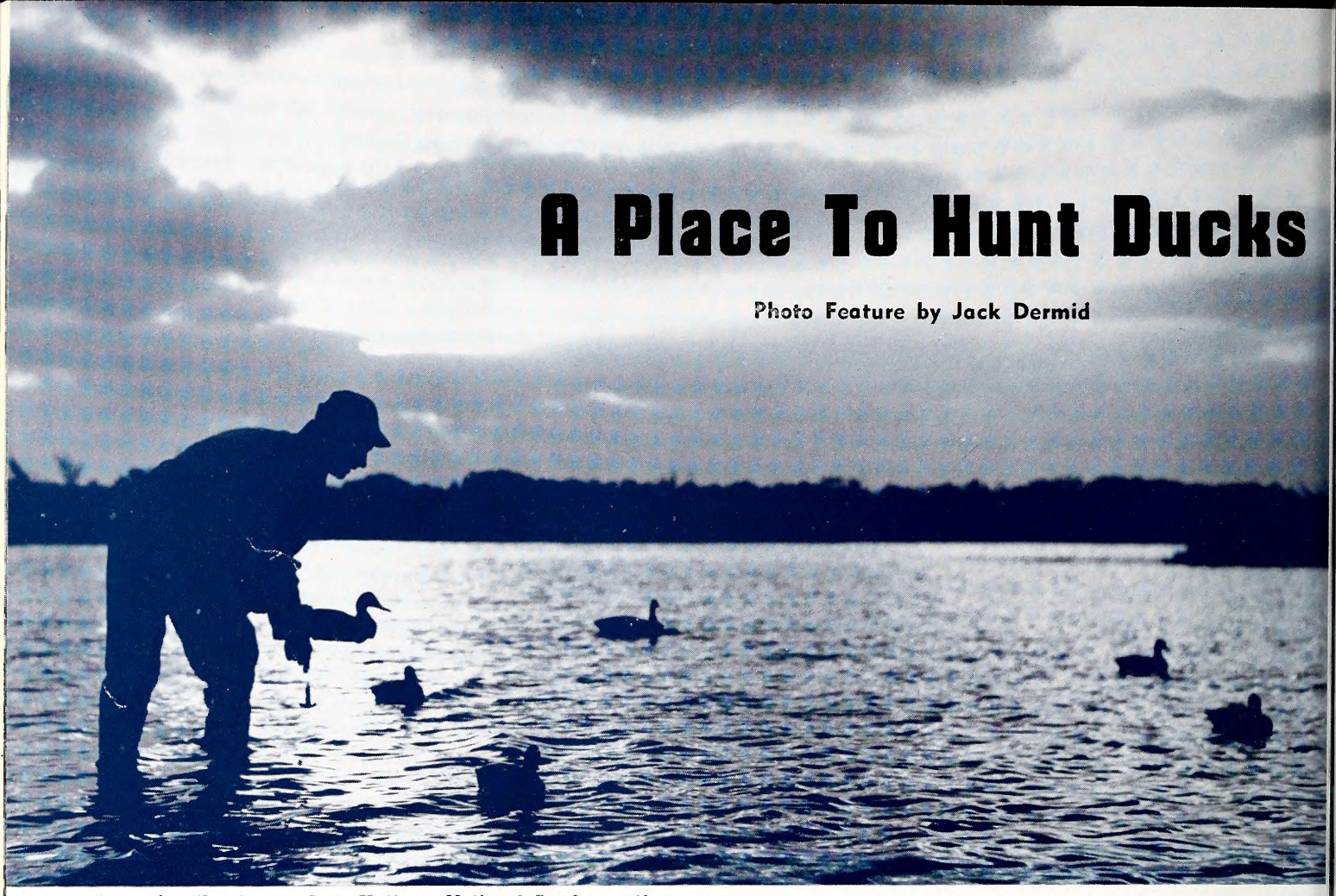
North Carolina now has almost a million acres of wildlife management areas opened to the general public for either big game or small game hunting or both. The Croatan Wildlife Management Area will be opened to deer hunting this fall for the first time. Regulations, schedules and general information on hunting wildlife management areas is available from the Wildlife Resources Commission, Box 2919, Raleigh.

A hunter brings in a buck from the Sandhills. Deer hunting opportunity will be increased in eastern North Carolina this year with the opening of Croatan Wildlife Management Area.

Photos by Jack Dermid

A Place To Hunt Ducks

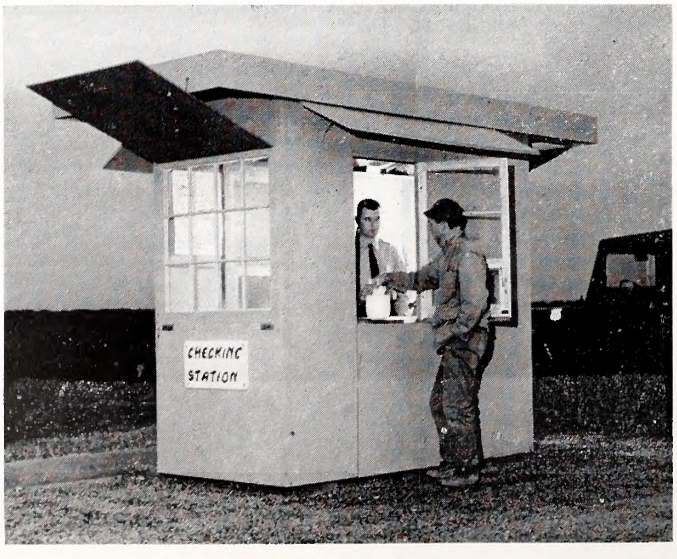
Photo Feature by Jack Dermid



Arranging the decoys. Cape Hatteras National Seashore offers free do-it-yourself waterfowl hunting. Hunters bring their own decoys and knowhow to match wits with big variety of fowl.

Cape Hatteras National Seashore offers do-it-yourself waterfowl hunting. Here is the story.

Hunters with reservations draw their blind assignments each morning at Bodie Island checking station. Blinds remaining open and second hunts are available on a first-come basis.



WATERFOWL hunting has always been a traditional sport on Bodie, Hatteras, and Ocracoke islands, and when the Cape Hatteras National Seashore was established there, Congressional legislation made provisions for hunting to continue.

Seashore duck and goose hunting is not just an obscure law on the books. It is a reality enjoyed by many sportsmen each season, and the National Park Service is making every effort possible to accommodate hunters.

Bodie Island, located a few miles south of Nags Head, is the most popular gunning area. There 1,500 acres of ponds and marsh have been designated for hunting and 20 permanent blinds are provided for sportsmen. There is no charge for the use of the blinds, but a valid North Carolina hunting license and Federal duck stamp are required.

Advance reservations for blinds can be made, but these will be accepted *only* if they are received by mail and bear postmarks *after* 12:01 a.m. September 25. Then reservations are awarded on the basis of earliest postmark date and hour.

Reservations cannot be made by personal visit or by phone. Individual hunters can make as many as six reservations per season, but are limited to three days in any week. For safety reasons, no more than two hunters are assigned to a blind. No Sunday hunting is permitted.

Now is the time to begin planning your waterfowl hunts, and full details and blind reservation forms can be obtained by writing to the Superintendent, Cape Hatteras National Seashore, Manteo, North Carolina. Although official forms are preferred for reservations, they are not required. But hunters should list their first, second, and third choice of hunting dates (as many as six dates for each choice). All reservations accepted will be confirmed.

Hunters with reservations obtain their blind assignments at a drawing held at the Bodie Island checking station each morning. Drawings begin about one-half hour before shooting starts. Reservations are held until 7:00 a.m. After that, remaining blinds are available to anyone on a first-come basis.

Each hunter is given a map of the Bodie Island hunting area showing the location of blinds. All blinds are reached by marked trails from designated parking places along the park road. Hip boots are needed to reach them.

After leaving the checking station, hunters are on their own. Comfortable blinds are provided, but sportsmen have to provide their own decoys and use their own skill to lure birds within shooting distance. It is do-it-yourself hunting all the way. Hunting is restricted to blinds, and jump shooting is prohibited.

How good is the hunting? Fifteen species of ducks in addition to Canada geese and coots have been taken at Bodie Island. Bluebird days and days when the wind blows from the northeast are not too productive. But when the wind blows hard from a westerly direction, driving birds from the adjacent sound, hunting is hard to equal. In general, during good waterfowl years, chances for a successful hunt are excellent.

Hunters that do not have blind reservations should not ignore the possibilities at Cape Hatteras Seashore. Many hunters do not show up to use their reservations, and others leave their blinds in time for them to be used again. Second and third hunts are not unusual. They are available on a first-come basis.

In addition to Bodie Island, hunting opportunity is available in three locations on Hatteras Island and on all of Ocracoke Island with the exception of Ocracoke village. No permanent blinds are available in these areas and no reservations are required. Hunting is permitted there by jump shooting or by setting up temporary or portable blinds.

For do-it-yourself waterfowl hunting, Cape Hatteras National Seashore offers the sportsman a wealth of opportunity. Try it!

Dr. Eugene Hester of Raleigh tries calling a pair of blacks. Surface and pit blinds that accommodate two hunters are provided at Bodie Island where hunting is restricted to them.

Besides Canada geese and coots, 15 species of ducks provide sport at Bodie Island. Pintails, blacks, mallards, baldpates (below), and shovellers are the most common species bagged.

Photo by Jim Lee

HUNTER SAFETY TRAINING

by W. L. Hamnett
Wildlife Education Representative

THE Wildlife Resources Commission has officially adopted the National Rifle Association Hunter Safety Program, and will henceforth act as the coordinating agency for all NRA certified hunter safety training in the state. This program is based entirely on volunteer instructors in a community who will be interested and willing to work with the youth and adults of schools, civic clubs, church organizations, and youth groups, such as Boy Scouts, Girl Scouts, Future Farmer of America Chapters, 4-H Clubs, and YMCA's.

The first steps have already been taken by the Commission to get the Hunter Safety Training Program rolling in North Carolina. A quantity of instructional literature and materials has already been obtained. Stanley A. Mate, Director of Training Activities of the NRA, held a training session at the Institute of Government, Chapel Hill, for nine wildlife patrolmen and two wildlife education representatives who have now qualified all the Commission's wildlife protectors as Hunter Safety Instructors.

Now we are ready to process applications from interested sportsmen and others of our state who would like to participate in this volunteer program. It might be well to note that for some years individual members and member clubs of the NRA here in North Carolina have been training youngsters in the art of safe gun handling. Under this new program *it is not necessary* that an instructor be a member of the NRA—anyone may be officially certified as a Hunter Safety Instructor for the basic four-hour course they will conduct.

The greatest potential source of volunteer certified Hunter Safety Instructors lies in North Carolina's many wildlife and sportsmen clubs, youth groups and civic leaders, the National Guard and Reserve units. This is an opportunity to guide the new hunters in safe and better hunting to take their place as sportsmen in our State.

If you would like to become an official NRA Hunter Safety Instructor, contact your local wildlife protector or write to W. L. Hamnett, Wildlife Education Representative, Box 2919, Raleigh, N. C. You will receive by return mail a kit containing literature on the NRA "Basic Hunter Safety Training Program" and a questionnaire designed to test your knowledge of safe handling of firearms. Simply fill out the questionnaire and return it to the Commission.

North Carolina's record in hunting safety is good. But with more people in the field and forest every year, more careful training of our hunters is needed. This new volunteer program is a beginning.

If you qualify you will receive an official identification card, and necessary teaching materials for the training course. When your students complete the course they will be eligible to receive from the NRA their official "NRA Safe Hunter" shoulder patch and identification card. Easy-to-fill-out forms will be provided by the Commission so that complete records for North Carolina can be transferred to Washington, and progress of the program carefully checked.

It sounds simple, and it actually is. It requires only a little time on the part of dads, uncles, and just friends of the kids next door to get them started on the right track as tomorrow's safe hunters.

Of course the final test of the value of any program such as this lies in the effectiveness in reducing the hunting accident toll. It has already proven itself in several other states and it is our sincere belief that the same will be true for North Carolina. This is certainly a cooperative venture in every sense of the word, and we can't think of a more worthwhile one which will mean so much to our youth in the outdoors of tomorrow.

New Fish for the Uwharrie

One result of fishery investigations has been more knowledge of the habitat requirements of different species. The introduction of smallmouth bass into the Uwharrie is an application of this knowledge.

by Buford L. Tatum
Fisheries Investigator

SOME 8,000 smallmouth bass fingerlings have been introduced into the Uwharrie River system this summer, in an effort to establish this bass as one of the game fish available to sportsmen fishing the Uwharrie and four tributary streams.

The tributaries are Barnes Creek, Cedar Creek, Dutchman Creek and Island Creek in Montgomery County. Island Creek empties directly into Tillery Lake, which at this point covers the old Uwharrie River bed.

The smallmouth fingerlings, which were released on June 29, are close cousins of the largemouth bass that is a native to this stream system. The fingerlings were produced at the Wildlife Commission's Table Rock Hatchery, where warm-water fish are produced for the upper Piedmont. The smallmouth isn't native to the Uwharrie system, but stream surveys indicate that in most respects these streams are suitable smallmouth bass habitat. Commission biologists felt that the probability of the species becoming established in the Uwharrie is great enough to justify a trial.

If the release of smallmouth fingerlings does prove successful, it will add greatly to the fishing potential of these waters. The smallmouth is found in some North Carolina waters, living in the cool lakes and streams that lie between the cold mountain trout waters and the warmer rivers below.

The smallmouth is golden-bronze green or brownish green, depending on water conditions. It is usually lighter in color than the largemouth. Sometimes dark brown or bronze vertical bands appear on the sides of the smallmouth, and usually there is a dash of red in the eye.

One of the most easily recognized differences in the physical appearance of largemouth and smallmouth bass is the position of the maxillary, or jaw joint. When the mouth of the smallmouth is closed, the rear end of the jaw joint is directly below and ahead of the center of the eye; on the largemouth the maxillary extends behind the center of the eye. The smallmouth's dorsal or top fin is not deeply notched, while the dorsal of a largemouth is so deeply notched that it often appears as two separate fins.

Generally the size of the smallmouth is a little under that of a largemouth of the same age—the average throughout the country is between one pound and a pound and a half. Four and five pounders are not rare, but ten-pounders and larger are most unusual. The preferred food of the smallmouth bass are minnows, worms, insects, frogs, crawfish and hellgramites.

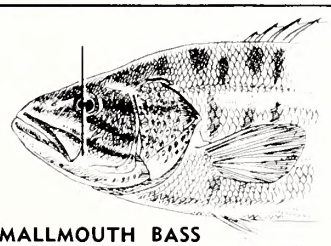
Most anglers who have caught both fish believe the smallmouth to be a better fighter than the largemouth. This is due to some extent to the smallmouth's preference for cooler, cleaner and faster-moving waters. Fast-moving streams with sandy or rocky bottoms are preferred over slower streams, and the smallmouth prefers lakes with sandy bottoms rather than muddy bottoms.

In streams you are more apt to find smallmouths around semi-submerged boulders and in pools at the foot of rapids or riffles. In lakes they are found over gravel bars and along rocky shorelines, especially if they have a fringe of weeds.

Smallmouths spawn early in the spring, and prefer a sand or gravel bottom for their nests. The male prepares the nest, carefully clearing away all debris so that the eggs will adhere to the clean stones and gravel on the bottom. In a few days the young hatch, and after spending several days hiding in the crevices of the nest—until their yolk supply of food is exhausted—they leave the nest and are on their own.

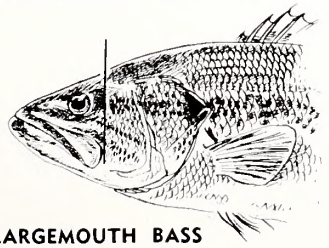
How will this introduction work out? Your success in filling a creel with smallmouth bass from the Uwharrie system now depends on Mother Nature—and the ability of 8,000 fingerling smallmouths to adjust to a new environment. Two years from now we should know the answer.

With the mouth closed, the upper jaw of the smallmouth extends to a point nearly even with the middle of the eye.



SMALLMOUTH BASS

The largemouth bass has an upper jaw that extends to a point back of the eye.



LARGEMOUTH BASS

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Dove, Marsh Hen Seasons Set

Tarheel scattergun toters may begin unloading shells September 1 when the season on marsh hens opens at sunrise. The bag limit for sora is 25 birds daily, 25 in possession. The bag for rails and gallinules is 15 daily, 30 in possession singly or in the aggregate; shooting hours from sunrise to sunset.

A bumper crop of doves is reflected in five more half-days of shooting than last year and a two-bird increase in the daily bag. First segment of the dove season will be from September 10-October 15, the second from December 12 to January 14; bag limits 12 birds daily, 24 in possession, shooting hours from noon to sunset.

Patton to Preside at International

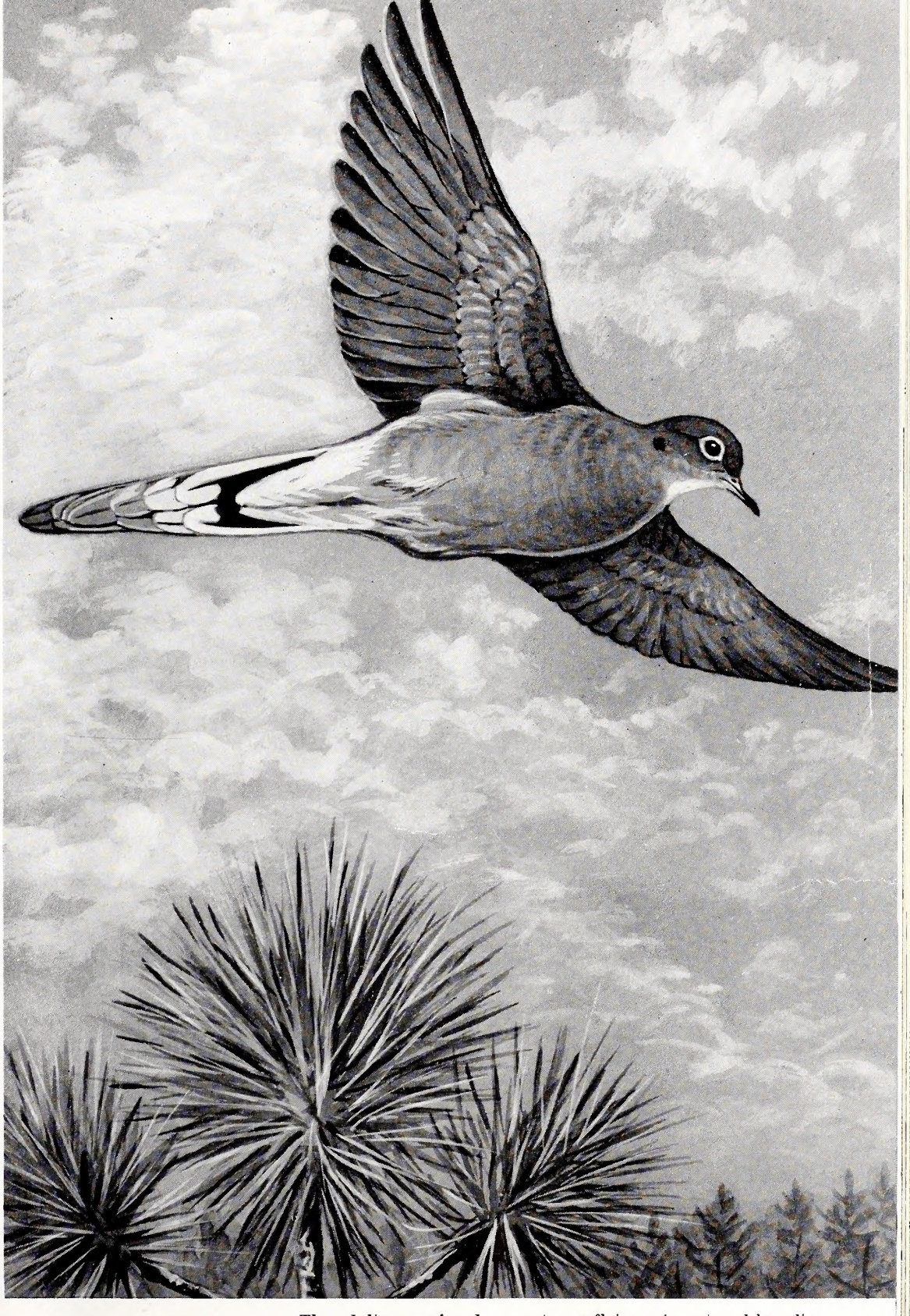
Clyde P. Patton, Executive Director of the N. C. Wildlife Resources Commission, will preside at the fiftieth meeting of the International Associaton of Game, Fish and Conservation Commissioners at Denver, Colorado September 15 and 16. Patton was elected president of the organization at its forty-ninth meeting held at Clearwater, Florida last year. His address to the group will be printed in the October issue of Wildlife in North Carolina.

"Hunting By Permission Only" Signs Available

The Wildlife Resources Commission has available a supply of free posters for landowners who allow hunting on their property on the condition that hunters obtain permission before going on the land. Application forms for the posters are available from the Wildlife Resources Commission, Box 2919, Raleigh.

Hunter Safety Urged

In keeping with its cooperative hunter safety training program with the National Rifle Association, the Wildlife Commission urges hunters to exercise extreme caution in hunting this year, especially during the dove shooting season when hunters tend to concentrate in fields - - - play it safe and play it square.



The adult mourning dove, a strong-flying migrant and breeding resident of North Carolina, has a wing spread of 17 to 18 inches. It is estimated that the total legal kill exceeds 20,000,000 per year, with North Carolina hunters harvesting half a million.

Text by T. Stuart Critcher

Illustrations by Wallace Hughes

The Mourning Dove's Year

Both the male and female take part in building the nest, incubating the eggs and feeding the young. It only takes a month from egg laying until the young leave the nest. An adult pair may produce five or six broods during the long breeding season.

The Mourning

THE mourning dove's
months—the average
approximately 70 percent.
during a year, and nestin
every season. Most of the
effective for other wildlife
dove, because of its migra

Predator control is of
to this migrant. Restocking
is considered unnecessary
nesting cover.

The major manageme
the harvest. Less than 20
according to recent surveys
have been progressively le
the year's annual surplus
wasted by natural causes.
annual surplus of every wi
especially to the mourning

These young, about ten days old, already are crowding the nest. At fourteen days they will leave the nest and begin to feed on their own. At this time the parents will mate, lay again, and then the dove's short reproduction cycle will begin once more.

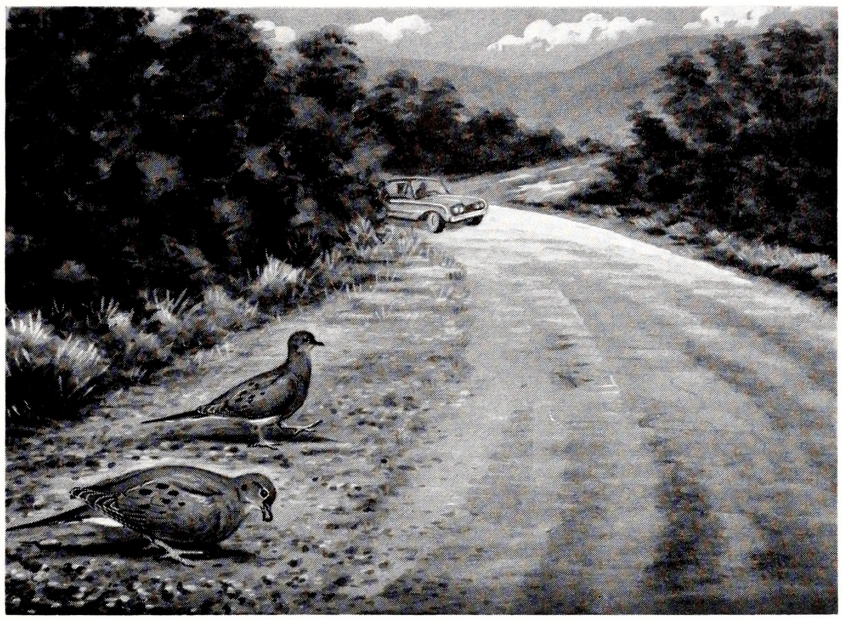
Although self-hunting dogs and house cats are a general menace to all small game species, especially during the breeding season, the total loss of doves to predation is small compared to much more important limiting factors of disease and weather.

ve's Year

ory is compressed into a few short nortality rate has been found to be : pair may produce five or six broods ive been found in North Carolina in management techniques that are so e rather impractical for the mourning s and rapid turnover.

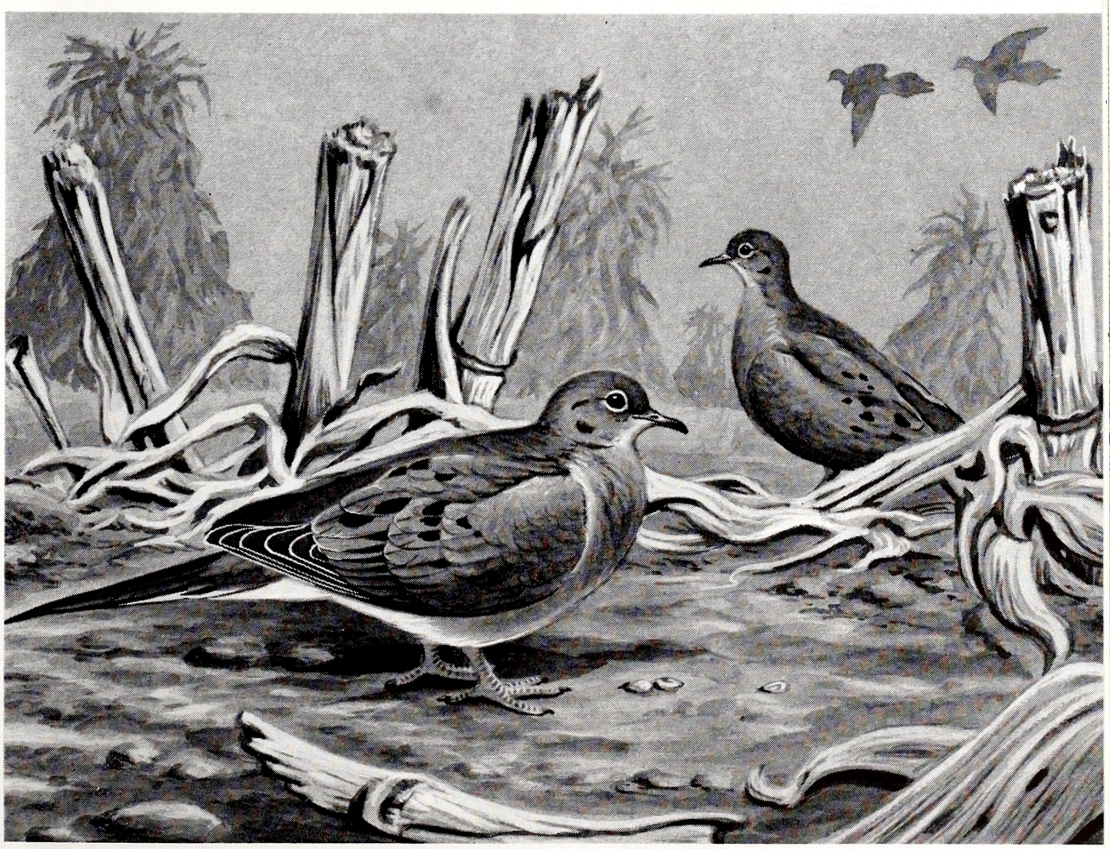
ie, and refuges would have small use tical. At present habitat improvement e is an abundance of food, water and

ow being used is regulation to govern f the annual loss is due to hunting, past several years hunting regulations ve. By permitting a greater share of ested by hunters, there are less birds iologists feel that a fair harvest of the is good conservation, and this applies



Doves are common roadside visitors all over North Carolina, as this seems to be a preferred place for obtaining the grit and small gravel to aid them in digesting hard-coated seeds. Calcium and other necessary minerals are also supplied by grit.

Waste cultivated grains and legumes and a wide variety of grass and other wild plant seeds make up the principal foods of the mourning dove. Doves do not scratch for food. Bare ground is preferred; seeds must be visible and easy for them to reach.



The Mourning Dove's Year

WHAT is being done to make certain that hunting and other factors will not ever cause the mourning dove to go the way of the passenger pigeon?

Currently a national inventory of dove populations is conducted every year to learn how many breeding doves are available to produce the fall crop for hunters. The results of this inventory are brought together and studied before hunting seasons and bag limits are set each year by the U. S. Fish & Wildlife Service.

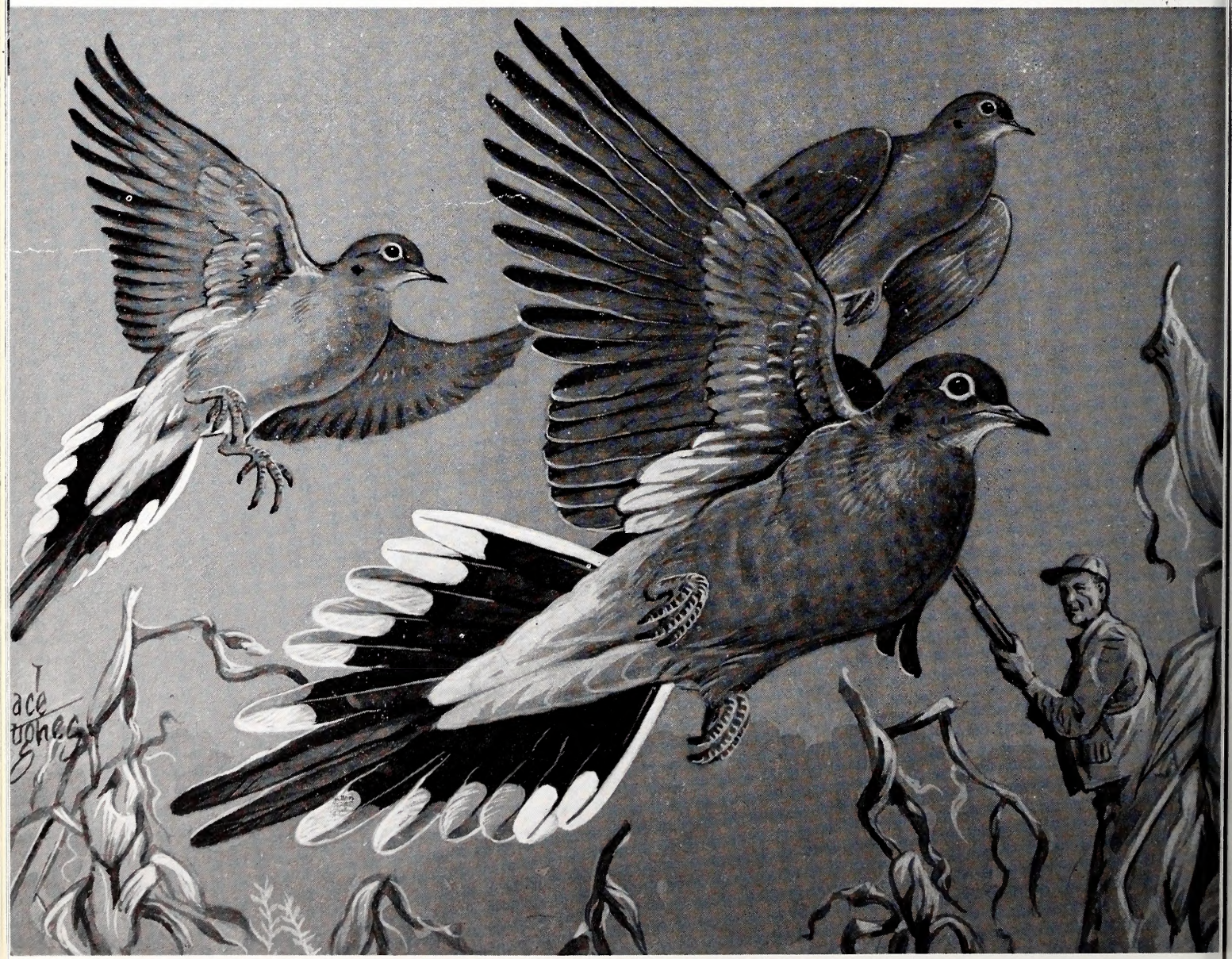
The inventories are carried on by roadside sight counts and by recording the number of cooing birds per mile of selected road-census route.

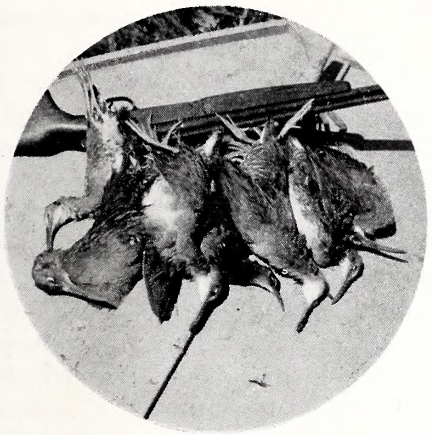
Banding has shown our dove population is composed of several different segments. During the first half of our split season we hunt birds that move into the state from the north as well as some late summer residents. Many of the birds produced in North Carolina are harvested to the south of us. During our second season we hunt birds that have started to move back north.

Since 1953 there has been a gradual increase in the population each year, so Tarheeel hunters will again enjoy a long and liberal season.

Doves are found in flocks except during nesting seasons. Roosting flights begin just before sunset as the birds go to roost for the night in thickets of pine or cedar.

Interest in dove hunting is increasing each year. The annual dove mortality rate is about 70 per cent, less than 20 per cent of which can be attributed to hunting.





Marsh Hens APLENTY

If you are looking for new and different hunting adventures, head for Tarheel salt marshes. This article tells where and when to go for best rail shooting.

by T. Stuart Critcher
Game Management Coordinator

AGAIN during the fall of 1960, as in years past, the clapper rail or "marsh hen" population along the lower North Carolina coast will be underharvested. For some strange reason the average hunter doesn't appear to be interested or simply does not know how to go about getting his fair share of this very abundant and good-eating game bird. For those who are interested in trying something new, here are a few hints that might be of interest.

The clapper rail is a bird of the salt marshes, but like the pheasant, it would rather run than fly. Best hunting conditions, therefore, occur where the tide is highest—the higher the better. Ideally, the tide should almost cover the tops of the marsh grass. These conditions result in the rails having to resort to flying rather than running tactics, and make it considerably easier for your hunting partner to shove the boat along at a steady pace. Paddling is almost out of the question due to the constant friction of the vegetation on the bottom of the boat. A long oar or ten-foot pole is much more satisfactory.

Often wading can be very productive, especially when the wind is strong enough to make boat handling difficult. Old sneakers and a pair of long pants suffice in this event, as waders are usually too warm during September and October.

Try Southport and Beaufort

The Southport and Beaufort areas have hundreds of acres of excellent rail marsh within throwing distance of the boat docks. Small light skiffs can be rented for a nominal amount. A small motor of about five horsepower should be taken along, if available, as it will aid in traveling to and from the shooting grounds. Motors or boats under power cannot be used while hunting, as this is in violation of federal migratory game bird regulations.

If you own or can obtain a light two-man duck boat, be sure to strap it on the car top as it is a very satisfactory rail boat. Guides are difficult to locate, but often local individuals can be found who want to earn a little extra money. There is no standard guiding fee and these arrangements will have to be made on a man-to-man basis. It is suggested that you go down the afternoon before the hunt so that all of these details can be worked out well in advance.

Guns and Ammunition

As for guns and ammunition—any gauge suitable for doves or quail is adequate and size 8 shot pushed by a light powder charge is all that is necessary. I would estimate that most kills are made within 30 yards of the gun. Rails usually flush a little farther out than quail but they are not as fast on the wing.

Rail and Sora Season

This year the clapper rail and sora rail season begins September 10 and continues through November 9. Shooting hours are from sunrise until sunset. The daily bag and possession limits on sora are 25 and 25, respectively; and on other rails and gallinules are 15 and 30, respectively, singly or in the aggregate.

Follow Tide Tables For Good Hunting

The following table gives some of the times and dates on which high tides occur during September. The influence of strong winds, however, cannot be predicted and often the elevation of the tide can be more or less than anticipated, depending on the velocity and direction of the wind. At Southport, a brisk northeaster often adds over half a foot of tide to the predicted high. This condition results in some rather fast—but tricky—shooting.

Want to try it?

BEST RAIL TIDES IN SEPTEMBER

Date	High Tide	Height (Ft.)
Sept. 1 (Thurs.)	4.20 p.m.	5.1
2 (Fri.)	5:21 p.m.	5.3
3 (Sat.)	6:18 p.m.	5.5
5 (Mon.)	7:58 a.m.	5.1
6 (Tues.)	8:16 a.m.	5.2
7 (Wed.)	9:05 a.m.	5.1
8 (Thurs.)	9:52 a.m.	5.0
23 (Fri.)	9:09 a.m.	5.0
24 (Sat.)	9:55 a.m.	5.1
30 (Fri.)	4:08 p.m.	5.1

*Time given is for Southport. For Beaufort add 10 minutes to the above-listed times.

Photo by Jack Dermid

Management Area

Bear and Boar HUNTS

by Frank B. Barick
Chief, Game Division

DURING the past 11 years bear hunters have bagged a total of 178 bears and 133 boars on wildlife management area party hunts. These hunts provide a special attraction since there are not many areas on which they can be conducted. Extensive and remote wilderness territory is required and we do not have many such places left in the state.

By far the most productive area in the state is the Santeetlah, close by the Great Smoky National Park in Graham County. This area has produced all of the boar and two-thirds of the bear taken on these hunts. The Sherwood area, on the west side of Pisgah in Haywood County, has been the next most productive area with an average of 4.5 bears per year. Daniel Boone, Pisgah, and Mt. Mitchell have also provided some fine races, but kills have not been as numerous.

Bear hunters will be glad to learn that the Harmon Den area in northern Haywood County will be open for four bear hunts this year. This will be the first bear hunting to be allowed in this section since 1955 when the area was set aside as a wildlife management area by the Wildlife Resources Commission and the United States Forest Service. This area is near the Great Smokies also, and there is reason to believe that it will be quite productive.

Bear party hunts are by advance application only. Usually only experienced bear hunters who serve as party leaders submit applications. Each party consists of not more than 25 members. Of these, five may be classed as dog handlers and as such they have the privilege of appearing on more than one application. The other 20 members may appear on only one application. The number of applications usually exceeds the number of hunts available, thus necessitating a public drawing to determine successful applicants.

The public drawing is usually held at the courthouse in Waynesville and has been scheduled for 9:00 a.m., September 21 this year. Each application is numbered and a capsule containing that number and the name of the party is placed in a bowl. Applicants are allowed to indicate alternate choices to be used in case their first choice of date is filled at the time their capsule is drawn. Applicants may also attend the drawing to indicate additional alternate choices they might wish to make.

As originally submitted, not all applications contain the total of 25 allowable party members. In such cases regulations allow up to five "add-on" members to reach maximum party size of 25 members. Such "add-on" members may join the party at the checking station on the day of the hunt with the payment of the "add-on" permit fee of $2.50 per day for residents and $5.00 per day for nonresidents. Regulations also allow up to five substitutions in the original application membership to provide for sickness or unanticipated business calls.

With the latitude provided by the add-on and substitution rule, room is created for several "guest" hunters on most of the hunts. Persons wishing to participate on this basis may secure the names of party leaders scheduled to hunt by writing to the Game Division, Wildlife Resources Commission, Box 2919, Raleigh, North Carolina.

Summary of Kills on Bear and Bear-Boar Hunts, 1949-1959
(Party hunts with dogs—does not include still hunt kills.)

Year	Santeetlah		Sherwood	Daniel Boone	Mt. Mitchell	Pisgah
	Bear	Boar	Bear	Bear	Bear	Bear
1949	6	25	1	*	*	*
1950	10	20	11	*	*	*
1951	5	14	2	1	0	*
1952	7	0	5	3	0	2
1953	9	5	6	0	0	*
1954	8	13	6	2	0	*
1955	18	7	3	4	0	*
1956	6	11	4	4	0	1
1957	11	9	5	2	2	3
1958	12	13	3	1	0	0
1959	12	16	3	**	0	**
Totals	104	133	49	17	2	6
Average	9.5	12.1	4.5	2.1	0.2	1.5

* **No hunts scheduled**
** **Hunts scheduled but no hunts taken by parties**

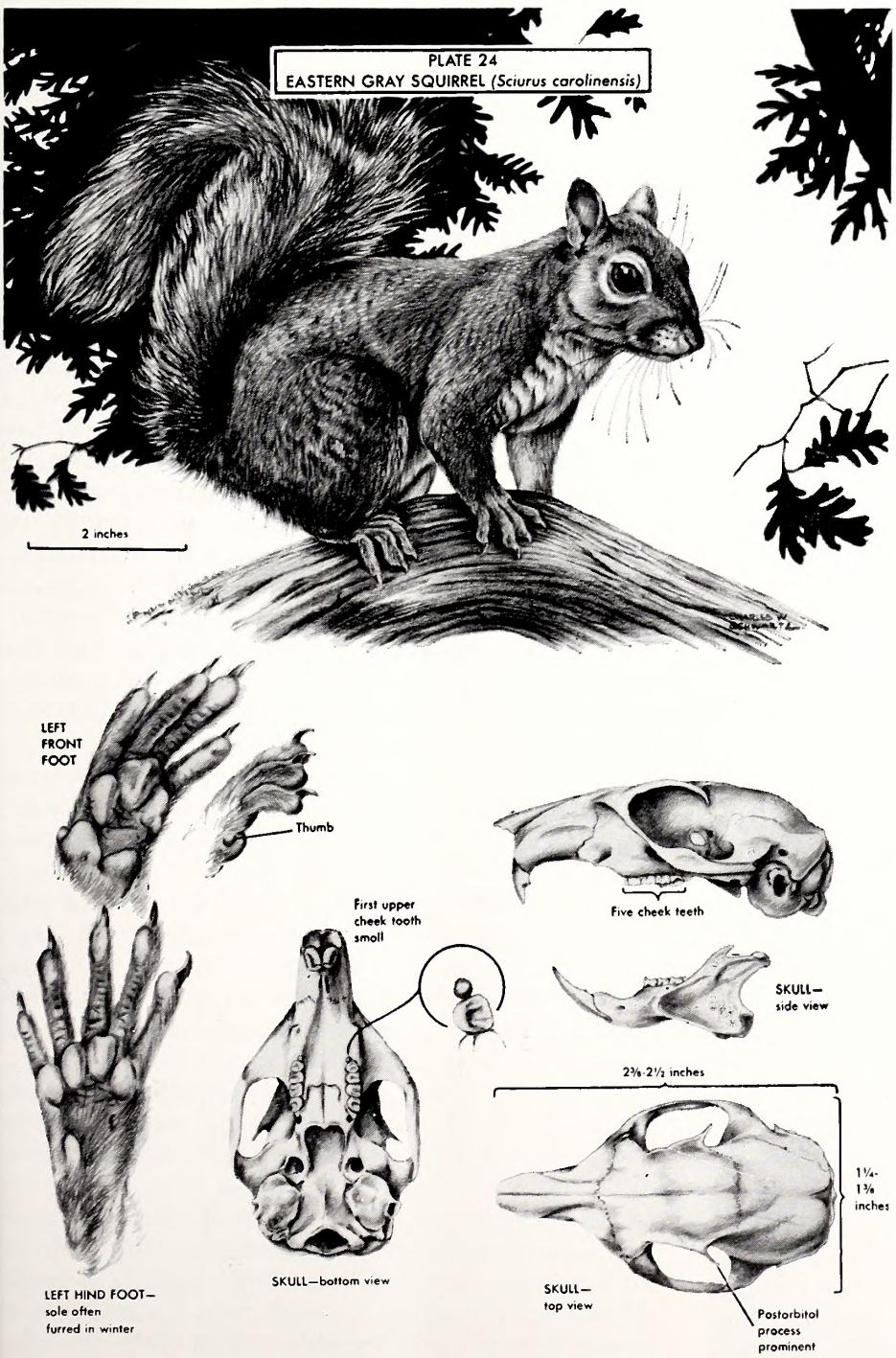
Book Review

The Wild Mammals of Missouri

by Charles W. Schwartz and Elizabeth R. Schwartz

Missouri Conservation Commission

Below is one of the full-page plates reproduced in "Wild Mammals of Missouri." Each important species is treated in similar detail, with many additional sketches to show habits of mammals described. The book is 8 x 11 inches, contains 341 pages.



ONE of the most interesting books on wildlife to appear in recent years was published recently by the Missouri Conservation Commission and the University of Missouri Press. Written by a husband-and-wife team of zoologists, "The Wild Mammals of Missouri" provides a valuable reference for those who want more than just a passing glimpse of our wild mammals.

The text is illustrated with 57 full-page plates and numerous smaller sketches. Treated in detail are 62 species, of which 51 are found in North Carolina. In the back of the book are 18 more mammals that are no longer found in Missouri or have been reported only rarely. Of these, six are or have been found in North Carolina at one time.

Most of North Carolina's important game and furbearing mammals are included, and the comments on their habits and life histories are just as valid for the Tarheel State as for Missouri.

The text is written in a clear and comprehensive manner, and the authors have achieved a delicate balance between the usually dry but fact-filled scientific writing and more popular but less informative publications.

For each of the 62 important species the authors give the name and the derivation of the name, its description and abundance, the habitat and home, habits, foods, reproduction, adverse or limiting factors, importance and management or control.

The illustrations are authentic and as near complete as space permitted. Included are pencil drawings of the animal, sketches of feet and other distinguishing features, sketches of the skull in several views, a range map and drawings of the tracks.

Both Mr. and Mrs. Schwartz are biologists on the staff of the Missouri Conservation Commission. Two of their junior science books have won wide acclaim, and their motion pictures have won international awards.

"Wild Mammals of Missouri" is priced at $5.95, and may be ordered from the University of Missouri Press, Columbia, Missouri.

—*Jim Lee*

The Skipper

Conducted by Duane Raver

- **DO ACCIDENTS "HAPPEN"?**
- **COMMON SENSE = SAFETY**
- **DISTRESS SIGNAL**
- **COOPERATION**

Safety is No Accident

IT's about worn out with use by the safety-slogan people, but it is still painfully true: "Most accidents don't happen, they're caused." The "unavoidable accident" of course does crop up whether with automobiles or boats, but careful analysis of each reported accident often brings to light a judgment error, perhaps a thoughtless act, lack of proper safety equipment or some other direct cause—something that could have been corrected.

The simple operation of an outboard motorboat is alarmingly easy. Show a five-year-old the throttle and shifting mechanism, place his hands on the steering wheel or motor handle and he's ready to "operate" the boat. He can take it just as fast as it will go with less than five minutes of instruction.

This very fact, simplicity in making the craft go, too often leads straight to overconfidence and thoughtlessness.

No one in his right mind would place a loaded, high-powered rifle in the hands of this same five-year-old youngster, point out the trigger and turn him loose in the woods. Yet the child probably could shoot it—he could operate the rifle. Obviously then there's more to boat handling than turning the steering wheel and pushing the throttle. If only the thoughtless skipper would let this soak in.

If you operate a boat like these boys, better dress for it. Take fewer friends aboard your boat and keep them longer.

It takes only a moment's thought to see that the act of separating our boating regulations from common sense is quite difficult. In other words the law-abiding skipper is one who exhibits common sense and vice versa. Any boatman who has practiced the common sense principles of safe outboarding has normally been within the ranges of the safety statutes. What is now the law, in most cases, has been common sense among boaters for some time.

However, how often does the experienced boatman shortcut some of the most basic dictates of common sense? How often does the novice boatman, because he has not learned to respect the water, fail to invoke his common sense judgment?

To refresh the mind of the experienced boatman and to help teach the novice some of the common sense safe boating principles, the Evinrude Boating Foundation offers these suggestions:

When boarding your craft from a pier step as close amidships (center) as possible and keep your body low. Tighten the lines on the boat before getting aboard or have someone hold the boat for you so it doesn't "slip away." Keep your arms and hands free . . . don't board loaded down with gear.

Before leaving the pier check to see that there is an approved life preserver, either jacket or cushion, for every boating member. Also make a complete check of the other safety devices—fire extinguisher, lights, emergency paddle and other gear necessary to make your boat a safe one. Make extra sure that your equipment is in operable condition.

If your craft is equipped with a conventional-type gas tank always remove the tank from the boat before filling and wipe clean before putting it back. If you have a permanent-type tank make sure not to spill any gas over the sides of the container. Un-

Refueling takes special care. Always remove the separate tank from the boat before adding gasoline. If the tank is permanent, be extra careful of spillage. Wipe up any surplus.

der no circumstances fill your tank near fire . . . especially a cigarette! You may recall reading the account of a boat fire in the Pamlico River near Washington, N. C., early in July. Spilled fuel ignited, killing one passenger and destroying the craft.

When taking your passengers aboard, don't overload. An overloaded boat is easily swamped. Follow the load capacity limits that the boat builder has established. Also, power your boat according to the manufacturer's maximum horsepower specification. An overpowered boat is hard to control and could be dangerous.

Speed and night boat operating just don't mix. Even though your craft is lighted in accordance with the law, take it easy. On June 12 of this year seven persons were critically injured as a result of a night collision of two boats on Lake Hickory—one traveling at an estimated speed of 35 to 40 miles per hour. Slow it down after dark.

If you must stand in a small boat, either put the motor in neutral or stop it altogether. Never change seats while the craft is moving.

Never launch your boat in swift waters or near a dam or falls and always start your outboard before leaving the pier. A midsummer tragedy in 1959 at Buckhorn Dam on the Cape Fear River was the result of operating a boat too close to the dam. If a trailer is used in launching your boat, block the wheels on both car and trailer, especially when launching on a slope.

All skippers should learn to be weathermen in order to keep tabs on cloud formations for signs of approaching storms or squalls. If a rain or wind storm should hit while you're underway head for shore. If the waves are large, head into them . . . if they are small, "ride them in."

Bring your boat into harbors and docks at a low speed and be careful when docking at another's pier. Should you have tin cans, bottles or food wastes aboard keep them in your boat until you can throw them in a disposal can ashore. Never litter the water with wastes.

Don't be a "boating cowboy." Rodeo contests are held on land not on the water. Boating cowboys are hazards to eveyone on or in the water. Operating too close to skiers may result in up-ending them, and then endangering them further by inability to stop. A whirling outboard prop puts a shark to shame in its ability to slice up human flesh. Remember, your boat doesn't have brakes—use common sense.

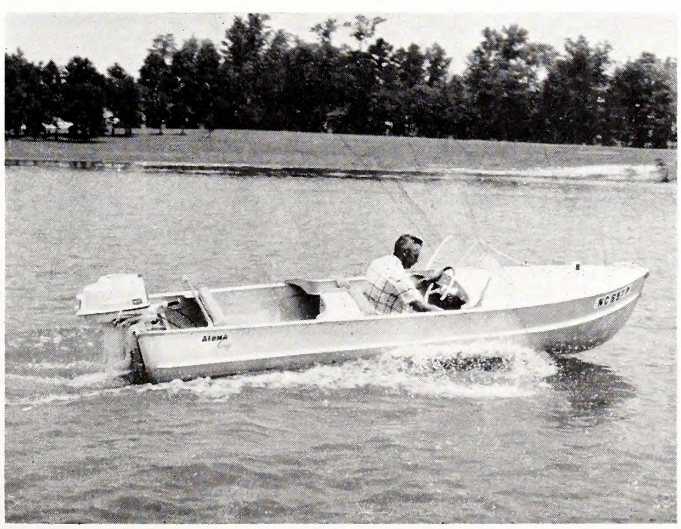
Daytime Distress Signal

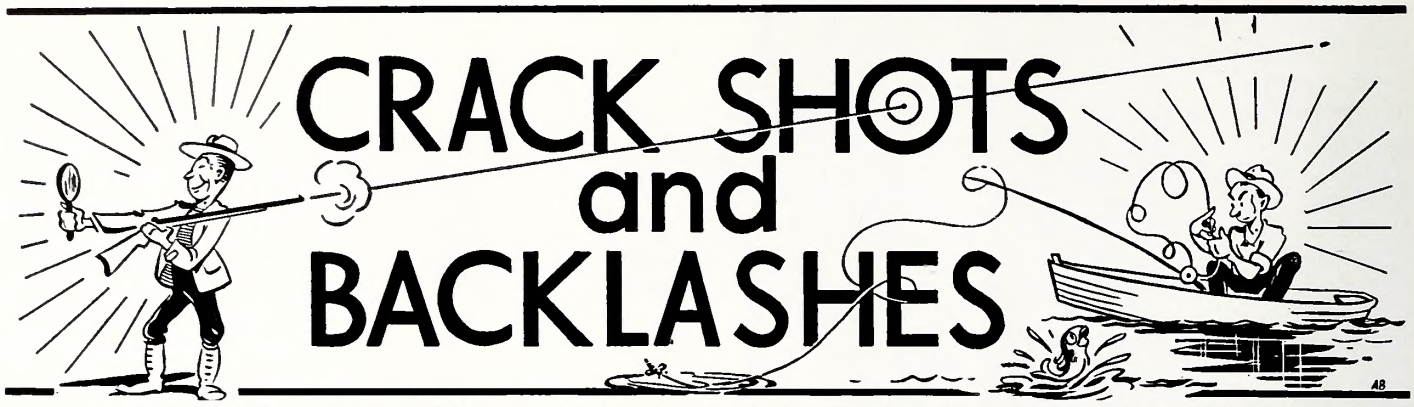
Here's one we hope you will never have the opportunity to use: it's a new distress signal for daytime use and has been adopted by the Coast Guard, according to Robert V. Hadley, Executive Secretary of the National Safe Boating Association. The signal is as follows: slowly and repeatedly raising and lowering arms outstretched to each side.

Cooperation

We can't help mentioning the splendid cooperation given the Wildlife Commission by the boat and outboard motor industries in their constant and untiring efforts to make boating safer. We feel they have contributed greatly to boating safety through engineering refinements in their products and safety education in various publications. A special thanks is due the Aluma Craft Boat Corporation of Minneapolis, Minnesota, for supplying the Wildlife Commission's Education Division with a 14-foot "Flying D" boat for water safety work and to the Johnson Outboard Motor Company of Waukegan, Illinois, for sending along an 18-horsepower outboard to push the "Flying D." To cover the miles between lakes, the Cox Trailer Company of Grifton, North Carolina, supplied a Cox boat trailer. These contributions will make it possible to bring safer boating to Tarheel skippers.

This is the Wildlife Commission's boating safety demonstration craft. It exemplifies a safe, balanced, family-fun boat.





DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Last September, at Clearwater, Florida, Clyde P. Patton was elected president of the International Association of Game, Fish and Conservation Commissioners. In taking this action the Association brought honor to Mr. Patton, the Wildlife Resources Commission, to North Carolina and to the South.

This month the International will meet at Denver, Colorado where Patton will preside. The International is one of the most influential conservation organizations in existence, and one of the oldest.

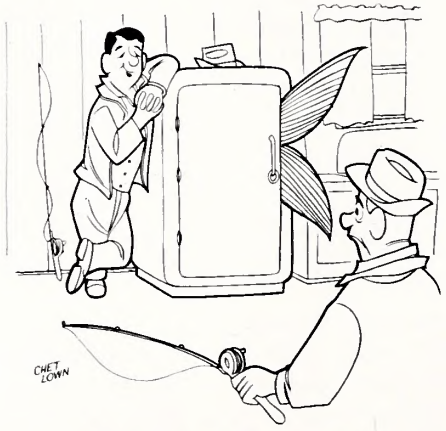
During the year of Patton's service as president the organization has been active in bearing influence on conservation legislation in Congress, plus matters of state and federal concern such as federal aid, water resources, soil bank, wet lands, waterfowl, pesticides, and hunter safety.

The Big One Really Got Away, This Time

The dramatic fight between a man and a giant sea fish as told by Ernest Hemingway in "The Old Man and The Sea" was relived recently in almost every vivid, unbelievable detail. This time Lyman A. McLeod, an insurance executive of Buies Creek, North Carolina, played the dramatic role of the old man.

Fishing from the new 1,000-foot fishing pier on Holden Beach late on a June Sunday afternoon, floating a live mullet from the "T," Lyman McLeod sat watching his float, which had then drifted to approximately 300 feet southeast of the pier. Suddenly a giant tarpon, estimated by him and others to weigh approximately 300 pounds—one of the largest ever to be seen in the southeastern North Carolina beach area—took the mullet. Lyman, known to his friends as a conservative fellow, described the spectacular fight which followed and which was witnessed by a large crowd of spectators as follows:

"I was looking right at the cork when he struck," Lyman said, "I had the rod standing by the pier rail and by the time I got my tackle in hand, one of the most unbelievably large fish that I ever saw or dreamed of seeing came up



"Ran into a little luck today, Ed!"

out of the sea completely clear of the water three times, coming straight at me and the end of the pier.

"He was so huge and made such gigantic leaps that it was terribly frightening. It looked as if he would surely come onto the pier. As he neared, he swerved, narrowly missing the end of the "T" and headed straight out to sea taking most of my 1,000-foot line before I was able to turn him by pulling down heavily on the drag. Then began a long battle between him and me.

"I almost lost all of my line twice as each time I gained line he would leap again and head back to sea. Finally, he began to tire, and I began working him down the pier toward the shore. On two different occasions he made a huge side wallow as if he was giving up, and I then felt that I was winning the battle and did succeed in working him 650 feet or more down the pier.

"I was within 300 feet of the shore when he suddenly revived and shot straight up completely out of the water again and lunged straight for the pier, passing completely under it, and cutting the line on the piling. That is the last I saw of him."

During the long fight the word spread ashore that a man was fighting a huge fish on the pier. To Lyman it was amazing how fast a large crowd gathered to watch this dramatic event. During all of this, Lyman's young son Eddy was right beside his dad witnessing, with eyes about to pop out of his head, something that he believed only existed in story books.

"I was frightened to death. I was afraid that thing would pull my daddy into the sea," was the way he excitedly expressed himself.

Lyman's final comments were, "He won, but I gave him something to remember me by. If I had not had all those witnesses, no one would have believed me. It was something out of this world; that fish was a giant sea monster. He was and looked like

a tarpon. As I saw the complete fish suspended in the open air above the sea, I said to myself, "He weighs approximately 300 pounds; but I had better not estimate his weight that high. No one will believe me because he is a miracle. No tarpon ever grew that big."

It was only after Lyman checked with the pier manager, Hugh Dutton, and found that the world's record was 350 pounds, that Lyman was willing to admit that he had estimated the fish to weigh approximately 300 pounds.

"If I could have ever landed that fish, we would have had to haul him to a weighing station in a pickup truck," he said. Those who witnessed the fight agreed with everything he said.

This was a dramtic, unbelievable, once-in-a-lifetime free show for those who watched, and later Sunday night there was added excitement as those who had witnessed the fight and who had seen the huge fish retold the story in nearly every waterfront home on the beach. It appears that the big one really did get away this time. —LONNIE D. SMALL, BUIES CREEK.

What Kind of Owl?

DEAR SIRS: Am just in receipt of your excellent magazine Wildlife; charmed with inside front cover "Phoebe," but failed to find identity of juvenile owls on page 21. Horn owls? Screech owls? Long eared? Short eared? etc. I once lived briefly at the base of a steep hill on the sides of which were many species of marine fossils and many small caves, and there I found a living fossil in a small gentle owl. I've never seen a saw-whet owl but this owl seemed to bear a close resemblance in size and outline. I saw only two of the species and in springtime one would sit on a fence post a few yards away and call in a soft tiny voice "Paul River, Paul River" for hours (quick accent P-A-U-L). (Prairie dog owls call "whee-tew" and their voice is far reaching). I tried for years to find the identity of the friendly little fossil but could not. Some tried to convince me it was of the goatsucker family but it was not. DAVID J. EDWARDS, CALVIN, OKLAHOMA

The owls pictured were of the great horned variety, much too young to be considered political candidates or fossils.

Speaking of fossils, friend Lucretia Plymph writes to inquire if camels once inhabited America. Yes, definitely, Lucretia. Their fossil remains have been found in many places. And incidentally, a camel is a horse put together by a committee.

Visitors to the Carolina coast during the fall months can see a picturesque scene nearly every week-day evening as the shrimp boats return for the night. The shrimping season in North Carolina is usually July 1 to December 31, Sundays excepted. North Carolina marks the northern limit of commercial quantities of the tasty crustacean. This shrimper is one of the fleet working from Stumpy Point into vast Pamlico Sound. The fleet moves up and down the coast as the shrimp move.

Fishery biologists took advantage of some of the Cape Fear River locks to sample the fish populations in District 2 this summer. Using rotenone, they tallied the fish trapped in a lock and then opened the gate to dilute the rotenone with river water.

PROTECTOR OF THE MONTH

Norfleet G. Crews, III

The Vance County Wildlife Protector, Norfleet G. Crews, III, was born in Granville County on March 24, 1929. He graduated from Dabney High School and attended Oak Ridge Military Institute.

Mr. Crews has served as the Vance County Wildlife Protector since July 1, 1950, and has attended four Wildlife Protectors' Training Schools, conducted by the Institute of Government in Chapel Hill. He is married to the former Juanita Bartholomew of Epsom, and they have one son, Norfleet G., IV. The Crews are members of the Salem Methodist Church, where Mr. Crews serves on the Board of Stewards.

ENFORCEMENT RECORD FOR JUNE

HUNTING & FISHING:	
Persons checked	41,122
Total prosecutions	710
Total convictions	681
Total cases not guilty	21
Total cases nol prossed	8
Total fines collected	$1,923.50
Total costs collected	$5,368.39
BOATING:	
Boats checked	6,724
Total prosecutions	226
Total convictions	218
Total cases not guilty	8
Total cases nol prossed	0
Total fines collected	$ 636.00
Total costs collected	$1,682.90

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

A Woodsman's Prayer

Lord, give me the great outdoors
Let me wander here and there—
Where a tiny stream trickles
and flows
While overhead the Osprey soars
High up in the air.
Let me walk where a buck
may lie
With the leaves beneath my
feet—
Where blue plumaged jay birds
cry,
And long-leaf pines sway
and sigh
There in that lonely retreat.
Let me feast my eyes on
nature's things
As I walk the hill and glade—
A yellow jessamine vine that
climbs and clings
A red bird as he sits and sings,
And other things God has made.
And then at last when I falter
and fall,
And my spirit is free and goes—
I pray not for a saintly hall,
But rather for the wild ducks' call
In an even greater outdoors.

—Laurens W. Milling

Water Held For Bass Spawning

DEAR MR. CORNELL: Attached is a copy of curves showing daily water temperatures and daily maximum and minimum reservoir elevations at our Tillery Plant from April 1 through June 4, 1960. I believe this covers the bass spawning period for the Tillery Reservoir for this year.

As you know during the bass spawning season we try to hold the lake elevation as nearly constant as practical, consistent with economic operation of generating facilities. During the 1960 season, the upstream reservoirs were full and spilling water from time to time. The big fluctuation in the second week in May was caused by heavy rains and high run-off of the river. W. J. BROGDON, OPERATING ENGINEER, CAROLINA POWER AND LIGHT COMPANY, RALEIGH.

DEAR MR. BROGDON: Thank you very much for your letter concerning the efforts of the Carolina Power & Light Company to maintain water levels in Tillery Reservoir with the least possible fluctuation during the bass spawning season. The temperature chart accompanying your letter would indicate that the bass probably spawned during the last week in April, and the fry should have been off the nests by the end of the first week in May. The flood run-off later in May should have had no adverse effect on spawning success.

We are very glad to observe that the maximum fluctuation during the probable spawning period was in the order of one foot. If the water levels in all reservoirs in the state could be held to such a small fluctuation during the bass spawning period, it would constitute a major contribution to the game-fish resources of North Carolina.

In the name of the sport fishermen of the state, we are glad to have this opportunity to thank you for your continued assistance and cooperation. J. H. CORNELL, CHIEF, FISH DIVISION

"He stocked it last summer."

An intensive week-long course in small boat handling and water safety was held at Camp Lejuene in July for 17 wildlife patrolmen. The graduates of the course, certified as water safety instructors, will hold courses in their home districts for the public and for wildlife protectors who will in turn be qualified instructors.

Squirrel Box Designs

DEAR SIRS: There was an article in Wildlife Magazine about squirrel boxes or nests, but I couldn't find anywhere in the article as to how to construct one. I am anxious to learn how to construct a squirrel box. Could you give me this information? I will be very grateful for your efforts. MILTON R. GOURJIAN, PLEASANTVILLE, N. J.

Squirrel box diagrams are available free on request from the Wildlife Resources Commission.

A Great Bargain

DEAR SIRS: I am enclosing a check for Wildlife magazine to be sent to my brother John of Akron, Ohio. He is quite an outdoorsman and loves to hunt and fish so I'm sure he will enjoy Wildlife as much as I do.

Wildlife is not only a wonderful magazine for the outdoorsman and sportsman it is also the greatest bargain one could ever find. GEORGE MIHAL, WILMINGTON

A Legitimate Gripe?

DEAR SIRS: I have been a subscriber to the magazine Wildlife for many years; being a subscriber I noticed a paragraph in the Resource-O-Gram titled "Fish and Wildlife Service Urges Purchase of Duck Stamps," in the March issue of 1960.

You stated in this paragraph that the duck stamp sales, this year, were down by a quarter as compared to last year. You also state that this drop might be due to a poor nesting season, therefore, the results were a poor hunting season. This reasoning may be part of the reason that the sales of the duck stamps are down, but I believe that one of the big reasons for the drop in the sales of the duck stamps is the present law that is in effect in some sections of North Carolina.

For instance, in the Lake Mattamuskeet area, a person cannot shoot geese after 4:20 p.m. In this area the geese do not fly until after 4:20 p.m. The Federal government allows a person to shoot geese until sunset. I don't see why the state should have a more strict regulation than the government.

Unless there is something done about the state law or the Federal law is observed, there will be a lot less duck stamps sold next year than there was this year, if the majority of the people feel as the people do in this community. I know of as many as ten people in the radius of two miles that did not buy stamps because of this law.

Just to show you what I mean I will explain it. I am a hunter. It is my hobby, you might say, I have hunted in a lot of different places. This hunting season I made two trips to Mattamuskeet Lake—a distance of 250 miles, one way, which is a total of 1000 miles for the two trips. I bought a State hunting license for $5.25, a duck stamp for $3.00, bought gas, drove 250 miles one way, paid $5.00 for a blind to shoot geese that do not fly in any number until after 4:30 p.m. To me this is utterly disgusting. I am inclined to agree with the people around here. Why buy a duck stamp unless you can use it when the geese are flying?

I would appreciate any comment you might have on the matter as to why the State cannot follow the Federal regulations in the hunting of geese. I am looking forward to hearing from you very soon. GOODMAN FULFORD, SUPPLY, N. C.

DEAR MR. FULFORD: Mr. Patton has asked me to reply to your letter of May 25, regarding the shooting hours at Lake Mattamuskeet. The 4:20 p.m. closing hour was established by the Legislature in 1957, and applies only to Hyde County. It is our understanding that this law probably will be repealed during the 1961 Legislature. ROD AMUNDSON

DEAR MR. AMUNDSON: I was really pleased to read in your letter of June 1 that the law governing Hyde County concerning the shooting of waterfowl is to be repealed during the 1961 Legislature. I am sure that a great many sportsmen will be better satisfied if this is done. GOODMAN FULFORD

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10 COMMANDMENTS of Shooting Safety

1. **Treat Every Gun With The Respect Due A Loaded Gun.**
2. **Watch That Muzzle!** Carry your gun safely; keep safety on until ready to shoot.
3. **Unload Guns When Not In Use,** take down or have actions open; guns should be carried in cases to shooting area.
4. **Be Sure Barrel Is Clear of Obstructions,** and that you have ammunition only of the proper size for the gun you carry.
5. **Be Sure of Target Before You Pull Trigger;** know identifying features of game you hunt.
6. **Never Point A Gun At Anything You Do Not Want To Shoot;** avoid all horseplay.
7. **Never Climb A Tree or Fence or Jump A Ditch With A Loaded Gun;** never pull a gun toward you by the muzzle.
8. **Never Shoot A Bullet At A Flat, Hard Surface Or Water;** at target practice be sure your backstop is adequate.
9. **Store Guns And Ammunition Separately,** beyond reach of children.
10. **Avoid Alcoholic Beverages** before or during shooting.

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october 1960

Photo by Jack Dermid

Autumn Sport

Dawn of opening day will find thousands of Tarheel hunters in their favorite woodland glades matching wits with the wily gray squirrel. Their chances for success will be excellent, for the mast crop is good this year in most areas of the State.

But many of the squirrels that the nimrods will sight may not be as lucky as the one pictured. This squirrel has a snug hollow that provides refuge from predators, protection from winter's cold, and a place to rear a family next spring. He has good living quarters. The lack of hollows may limit the squirrel population—and the hunting—in certain areas. Fortunately, however, the gray squirrel will utilize homemade nesting boxes, and sportsmen are urged to evaluate their hunting grounds this fall and then erect boxes where they are needed. Free construction plans may be obtained from the Wildlife Resources Commission.

The squirrel season opens October 1 in most western counties, October 15 in most eastern counties, and November 1 in most central counties. See the 1960-61 Hunting Regulations for complete details.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

ROBERT M. CARR, *Chm.* ..... Wallace
J. A. BRIDGER, *V. Chm.* ..... Bladenboro
T. N. MASSIE, *Sec'y* ..... Sylva
G. E. BEAL ..... Red Oak
THURMAN BRIGGS ..... Lexington
JAMES A. CONNELLY ..... Morganton
R. FLOYD CROUSE ..... Sparta
S. I. STEWART ..... Greensboro
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CLYDE P. PATTON
Executive Director

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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

Our October cover is a closeup of a bit of autumn—raccoon tracks amid fallen maple and sweetgum leaves. To the observant outdoorsman, every mudflat, sandbar, and field of snow is an open page in nature's book where a story is written by every passing animal with footprints and other marks.

Besides identifying their maker, animal signs often reveal information about the life history of a species. They give the biologist clues to food habits, tell the hunter where to seek his trophy, and show the trapper where to set his traps. Learning to read and understand them is a great outdoor challenge, one that gives more meaning and fun to hunting and fishing. Color photo by Jack Dermid.

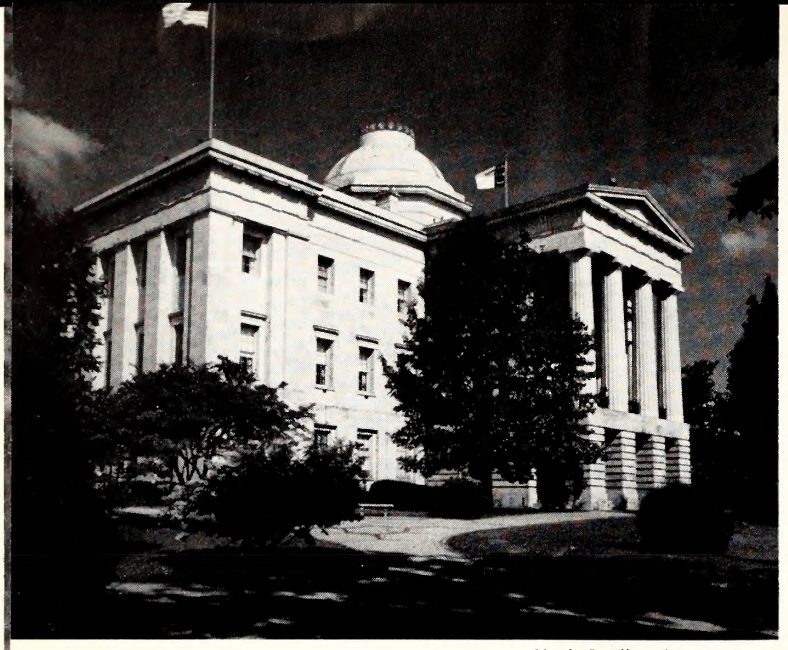
WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.



North Carolina News Bureau

"State governments, representing the sovereign people within their respective jurisdictions, have a clear-cut responsibility in the field of fish and game conservation."

The Next Fifty Years

By Clyde P. Patton
September 15 and 16, 1960
Denver, Colorado

During the past year, Clyde P. Patton, executive director of the Wildlife Resources Commission, has held the honored position of president of the International Association of Game, Fish and Conservation Commissioners. Here is his thought-provoking address at the Association's 1960 meeting.

IT is both a privilege and a pleasure for me to welcome you to the fiftieth annual meeting of the International Association of Game, Fish and Conservation Commissioners, and to thank you for your presence here. In doing so, I speak on behalf of our hosts, and all of the many individuals and groups who have done so much planning and hard work in order to get this, our semi-centennial meeting, off to a successful start.

Although this is our Golden Anniversary meeting, some of you may recall that this progressive association was organized on July 7, 1902. On that significant day, the National Association of Game Commissioners and Wardens met at Yellowstone National Park to form what became known in 1917, at a meeting in Saint Paul, Minnesota, as the International Association of Game, Fish and Conservation Commissioners.

It is fitting, it seems to me, that our program chairman, the Honorable Laurence Riordan, and the other distinguished members of his committee, have chosen as our theme for this meeting a phrase that may be as significant as it is appropriate. The phrase is: "The Next Fifty Years."

No one here would question that the next fifty years, or the next year or the next hour may be the most important in history. Let us hope—in the face of constant world crises—that the next hour or the next year or the next fifty years will not bring catastrophe.

I believe it was Santayana who said, "Those who cannot remember the past are condemned to repeat it." To get a better look at the future of fish and game, it might be well to look briefly into the past. To see where we should go, we need to see where we have been. From the lessons of the past, we must determine who should accept responsibility for guidance in the future.

Most of the basic laws in this country, as they pertain to our wildlife resources, had their origin in English law and English common law. Many years ago, in England and in many other European countries, the ownership of game was vested in the sovereign ruler. The king and the nobility had the sole right to hunt and fish. This concept gradually changed over the course of time. With the freedom of the individual in the New World also came equal rights to share in the game and fish resources.

There is not time, and this is not the place, to give a full account of the progress of freedom--the freedom to use wisely or to destroy—our natural resources. But it is essential, I believe, that we look at some basic principles—to see how they have been developed and how they might be further developed during the next fifty years.

With the signing of the Magna Charta, a *trend* began that made the *people* sovereign and the king little more than a figurehead.

When American Democracy was born, the people of America became, in fact, sovereign. Two great documents, the Declaration of Independence and the Constitution of the United States of America, brought to the common man a dignity he never before had known. With this dignity, and with this freedom, came responsibilities never before imposed upon him. In a new hemisphere, under a bold new government, the man on the farm and the man on the street were given a responsibility and an incentive that were completely new.

The following is quoted from a court ruling that has been cited many times in legal cases having to do with the ownership of game and responsibility for our wildlife resources:

"The ownership of game is in the people of the State, and the Legislature may withhold or grant to individuals the right to hunt and kill game, or qualify or restrict it, as in its opinion will best subserve the public welfare. No one has property in animals and fowls denominated as 'game' until they are reduced to possession . . .

"At common law, title to game was in the King (with us now in the sovereign people), and no one could hunt game even on his own land without a franchise from the Sovereign. Wild game within a state belongs to its people in their collective sovereign capacity. It is not the subject of private ownership except when some express statute confers it . . ."

The Constitution of the United States provides for three branches of government: the Executive, the Legislative, and the Judicial. Little did the founding fathers realize how many bureaus, agencies, departments, committees, and sub-committees would be necessary to carry on the biggest business in the world, the United States Government. No single department of this government—not even the most powerful—can in any way be considered sovereign. It is within such departments or bureaus or agencies, however, that attempts have been made by individuals or groups of individuals to distort or pervert, often for personal gain, the concept of the ownership of our game and fish resources. For evidence of this, we may refer to records on the hearings that have been held by the United States Congress on certain game and fish bills.

Lest I be misunderstood, I wish to say here and now that for the most part the relationship between state and federal agencies concerned with game and fish has been excellent. As states, we owe a great deal to federal agencies for assistance, guidance, and counsel, for conscientious administration of federal aid funds, and for other helpful national programs beneficial to wildlife and other resources.

Coming from the South, I could be expected to feel strongly about certain constitutional prerogatives of individual states within our Union. This I do. We do not need to enter into an argument regarding states' rights. Such arguments serve only to segment our country into regional groups. There are, of course, regional differences; problems of conservation are different in minor ways in the various sections of our country. Basically, however, these problems are the same.

The Governor-nominee of North Carolina, the Honorable Terry Sanford, had this to say of his particular region: "We in the South cannot continue to isolate ourselves from the rest of the Nation. When we isolate ourselves, we invite the

"With the freedom of the individual in the New World also came equal rights to share in the game and fish resources."

Photo by Jack Dermid

"From lessons of the past we must determine who should accept responsibility for guidance in the future."

rest of the country to use the South as a whipping boy . . ."

This concept is equally true of every other section of the country, and it is true of the relationship between state and federal agencies. Rather than discuss states' rights, we should consider *states' responsibilities*. State governments, representing the sovereign people within their respective jurisdictions, have a clear-cut responsibility in the field of fish and game conservation. The extent to which this responsibility is fulfilled effectively and efficiently by state governments, for and on behalf of the people, will largely determine the extent of their freedom from encroachment by the Federal Government upon their jurisdictions.

To use another time-worn expression, "Eternal vigilance is the price of liberty." To paraphrase that expression, I would say that eternal vigilance, hard work, and adherence to the fundamental principles of good government is the price we must pay, and pay generously and willingly, for the continued state control of our heritage of fish and game. We cannot protect the interests of the people without, at the same time, assuming and fulfilling our own responsibilities as states, as provinces, as agencies, and as an organization.

Another prominent North Carolinian, Congressman L. H. Fountain, gave some straightforward words to the governors of the United States last summer at Glacier Park on the subject of centralized government and states' rights. He said that there is nothing perfect about centralization or uniformity in America; but he added that if the states and localities neglect their responsibilities, the consequence "will almost surely be a further concentration of power in the Federal Government."

"It is axiomatic," he said, "that the less we solve public problems at the state and local levels, the more such problems will be dealt with at the national level."

We cannot cry to high heaven for states' rights and at the same time shirk our local responsibilities.

The Honorable A. Willis Robertson, United States Senator from Virginia, clearly summed up the relationship between state and federal governments regarding game: "The whole matter goes back to the type of Union that was formed in 1789 when two-thirds of the original thirteen states ratified the Philadelphia Constitution. The states that formed that Union were sovereign states, and they reserved for themselves and the people thereof all rights that were not specifically granted to the Federal Union. It was not until after the ratification of a treaty with Canada concerning migratory birds that anyone ever claimed that the Federal Government had any jurisdiction whatever over any type of game.

"Then, a case was tried in the Federal Courts involving the violation of the Federal regulation concerning the hunting of ducks; the defendant claiming that the Federal Government had no jurisdiction. However, the Supreme Court of Appeals held that the treaty with Canada gave the Federal Government jurisdiction because the Constitution provided that the law of the land should be what was in the Constitution, the Acts of Congress, and the provisions of ratified treaties. That case, while confirming Federal jurisdiction with respect to migratory birds also confirmed State jurisdiction with respect to all game birds and animals not covered by the migratory bird treaty." I consider this statement by Senator Robertson to be of utmost importance.

If our wildlife is to be properly controlled, managed, and used for the benefit of all, and the rights of the individual to equal benefits are to be protected during the next 50 years, we must continue to insist on compliance with the historic precept and law which establishes the ownership of game in the sovereign people and clearly fixes the responsibility for migratory and nonmigratory game with the respective federal and state governments. Also, there must be cultivated and maintained a spirit of cooperation and mutual respect between all agencies concerned in carrying out their responsibilities for the common good with special privileges to none.

Fortunately, these laws, precepts, and attitudes generally have been carefully observed by both

state and federal governmental agencies. The exceptions have come about as a result of selfish, unsportsmanlike desires on the part of a few individuals seeking personal advantages or benefits from game and fish on public lands regardless of the law and the public interest. There have been occasions when congressional action has been necessary to resolve resulting controversies. The International Association of Game, Fish and Conservation Commissioners, and good sportsmen throughout the nation, owe a debt of gratitude to the members of the United States Congress for the passage of such legislation as the Engle Bill which reaffirmed the sovereignty of the people and the authority of state legislatures over resident game and fish on certain public lands of the Federal Government where hunting and fishing were being permitted

Fishermen who object to paying license fees required of nonresidents in the various states recently have asked Congress to pass a so-called Federal Fishing Stamp Act. The obvious purpose is to relieve transient fishermen of expense for annual nonresident state fishing licenses. Here we have another example of a few individuals seeking personal advantage with a proposal for encroachment on the well-established legal precept that the people of each state own and control the resident wildlife species, including fresh-water game fish. It would appear that fishermen who benefit from state programs which produce and perpetuate these game fish should willingly pay their fair share of the cost as determined by state legislative bodies. Efforts to gain exemptions from state nonresident license requirements through federal legislation should be opposed. License fees of the states constitute the logical sources of income necessary to finance their respective fish management programs. Instead of functioning as license collectors, the proper role of federal government lies in the fields of long-term fundamental research, and in cooperation with the several states in the management of interstate and international fish populations.

This same principle applies to all wildlife conservation programs. The states have the legal right, and the consequent responsibility, to manage resident wildlife populations. If they fail to carry out their responsibilities, there is no doubt that the federal agencies will assume these prerogatives.

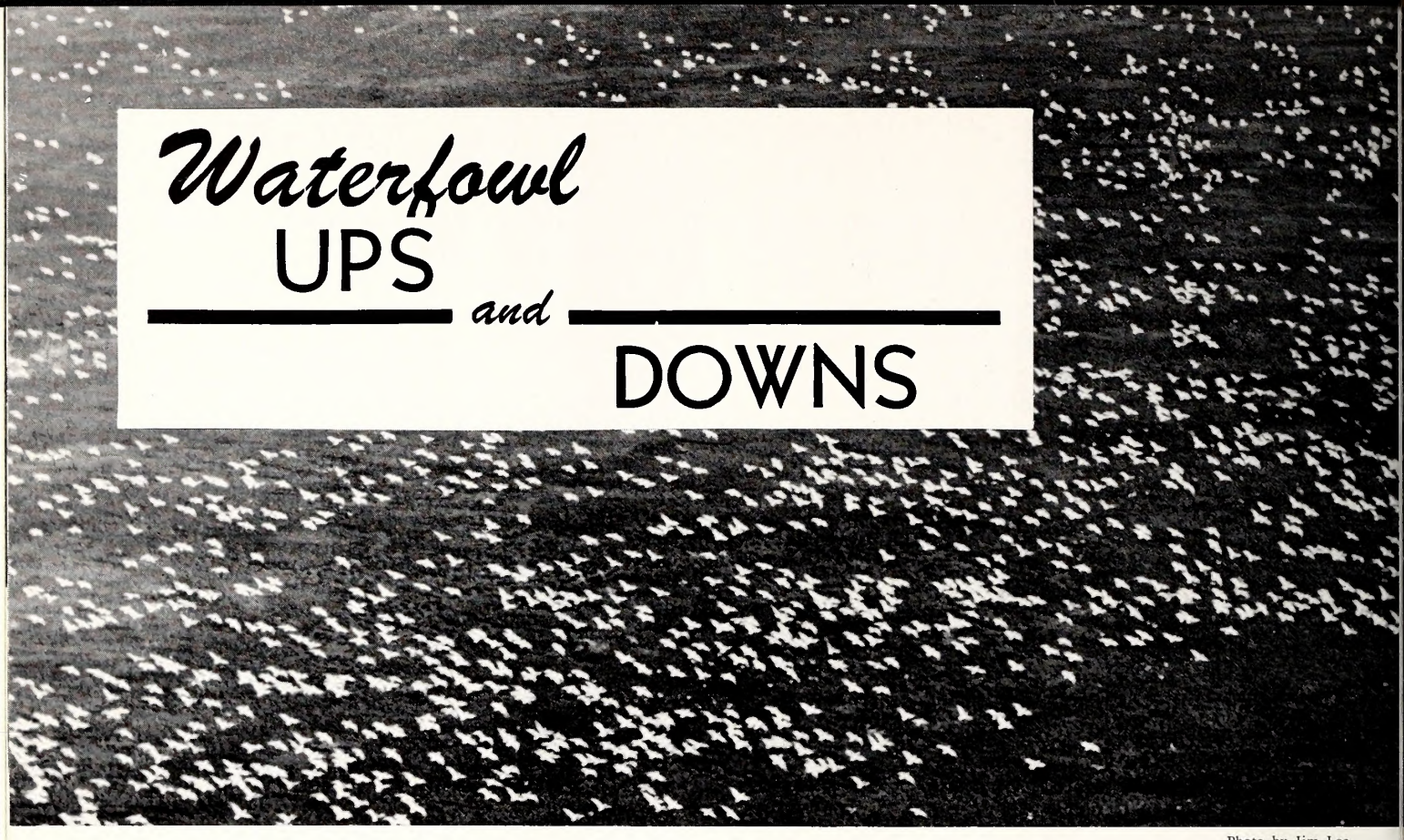
Progress during the next 50 years will come about only through eternal vigilance and work to defend the important basic principles that have served us so well in the past. It will come through honest efforts to establish mutual understanding and respect between federal, state, and local governmental agencies, and national, state, and local organizations. The forces of conservation have banded together in organizations such as our own to cooperate in making progress possible.

While there are many outstanding persons and groups of persons in attendance at this Golden Anniversary convention who deserve recognition, I am especially grateful for the presence of representatives of our nine-member Wildlife Resources Commission from the State of North Carolina. It has been my happy privilege to serve that distinguished Commission as Executive Director for nearly 13 years. The high office of the Presidency of this organization, also, has been a real honor to me, personally.

May I express my sincere gratitude to the other officers of the Association, to the Executive Committee, to those who have served on the various committees, and to the membership in general for your fine assistance and support during my term in office. I am very thankful for the progress that we have made in the past and for the things that I am confident we will accomplish in this meeting and in the future. I am sure that we can look forward to the next 50 years with pleasant anticipation and assurance of continued success.

"Progress during the next 50 years will come about only through eternal vigilance and work to defend the important basic principles that have served us so well in the past."

Photos by Jack Dermid



Waterfowl UPS and DOWNS

Photo by Jim Lee

by Otto Florschutz, Jr.
Waterfowl Biologist

HOW many ducks can you expect this winter? Will there be shortages as there were last season, when restrictions were placed on some ducks such as the canvasback? Do the biologists know what they're talking about when they predict a shortage or abundance of waterfowl?

The relative abundance of the annual fall population of waterfowl depends on weather and other conditions on the breeding grounds in Canada, where our waterfowl spend the summer producing a crop of new birds. Surveys of nesting success are conducted each summer on these breeding grounds to provide information on which the current seasons and bag limits can be based.

Another factor affecting waterfowl populations is the number of birds remaining after the season ends. These birds will be the breeders the following spring and summer. Mid-winter inventories of the waterfowl in the Tarheel State give our biologists a look at the *long-range* trend in waterfowl populations, and provide something against which the breeding ground estimates can be compared.

Each year, immediately following the waterfowl hunting season, the U. S. Fish and Wildlife Service and the state and provincial fish and game agencies throughout the United States and Canada conduct extensive surveys. These surveys record the numbers of ducks, geese, swans, coots, and mergansers present in each state and province. The North Carolina survey is carried out by representatives of the Fish and Wildlife Service and the Wildlife Resources Commission.

Most counts are made from airplanes, although some are also made from blimps, helicopters, boats, and by ground observation. In North Carolina the counts are taken in major waterfowl areas that comprise about 35 percent of the entire state. The counts are totaled to indicate North Carolina's post-season share of waterfowl.

The inventory conducted in early 1960 showed that the entire Atlantic Flyway contained some 3,374,500 waterfowl. Approximately 12 percent of these birds were present in North Carolina at the time of the inventory. This figure fluctuates from year to year because of weather, available food, and many other factors.

A ten-year summary of the mid-winter counts in North Carolina is presented in the accompanying table. The figures show only the broad patterns, and contain some peaks which may not occur again for many years. The figures do, however, show the fluctuation from year to year and the average percentage of the total represented by each species.

The table shows a peak population in 1952, when 843,444 waterfowl were estimated present. Scaup were present in the greatest numbers of any species that year—over a quarter of a million greater scaup were found in Pamlico Sound. Since 1952 this species has not returned in any vast quantity during the inventory period.

With the exception of the pintail, dabbling ducks were far below the ten-year average in 1960. Important diving ducks, such as redheads, canvas-

backs and scaups were also far below the average. Canada geese have remained high during the entire decade, exceeding the ten-year average during the past three years.

One of the difficulties of the current method of counting waterfowl is reflected in the figures shown for wood ducks. With the exception of 1951 and 1952, when the state-wide figures were estimated, only the actual numbers seen are given in the table. This species, however, spends the majority of its time in swamps, dense marshes, scattered creeks and rivers and farm ponds. Aerial surveys cannot reveal concentrations of wood ducks under these conditions. The wood duck figures are therefore misleading—actually, wood ducks have increased in numbers during the past ten years and the bag limit has been raised.

What conclusions can we draw from the figures for the past ten years? Discounting errors in sampling and the variations of weather and food conditions, the ten-year average for all species is about what we can expect during the 1961 count. We can expect a continued shortage of diving ducks such as redheads and canvasbacks, and good—perhaps better than average—Canada goose populations.

In the next issue of *Wildlife* we will compare North Carolina's waterfowl populations with those of other Atlantic Flyway states during 1959 and 1960 to see what share we enjoy of the total flyway population.

SUMMARY OF MID-WINTER WATERFOWL COUNTS, 1951-1960

SPECIES	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	AVERAGE
Whistling Swan	9,297	9,590	7,767	6,000	12,244	11,347	4,372	9,389	9,017	12,804	9,183
Canada Goose	132,315	145,594	135,925	94,075	126,721	185,868	98,194	146,875	152,484	148,225	136,628
Snow Goose	21,000	30,006	33,041	34,619	30,150	24,228	26,300	42,710	18,503	41,001	30,156
Blue Goose	36	23	52	41	24	213	52	27	1	406	87
Brant	1,550	120	134	685	156	435	410	175	960	500	512
Mallard	9,344	6,004	8,723	14,436	22,242	23,933	23,760	25,815	17,251	12,300	16,381
Black Duck	19,998	23,253	16,041	20,911	23,384	21,994	13,327	26,406	21,788	15,990	20,309
Gadwall	4,571	3,390	3,385	4,657	4,300	6,162	1,929	3,550	5,832	2,000	3,978
Baldpate	15,761	16,278	6,826	8,858	16,621	20,372	5,407	22,325	6,815	5,000	12,426
Pintail	34,625	23,389	18,205	23,442	28,830	25,494	14,702	39,660	14,962	25,200	24,851
Green-winged Teal	4,635	4,473	4,993	2,703	2,911	10,160	1,635	15,380	4,396	2,900	5,419
Blue-winged Teal	6	59	40	9	--	--	--	8	--	100	22
Shoveller	725	826	--	23	92	850	575	800	800	200	489
Wood Duck	31,604*	34,695*	2,188	342	476	--	6	10	55	300	6,968
Canvasback	20,461	18,003	13,237	9,445	16,789	14,168	7,878	10,850	6,204	7,100	12,413
Redhead	27,553	31,555	37,060	12,865	24,425	20,615	18,026	10,620	7,612	5,500	19,583
Gr. & Lesser Scaups	80,897	256,746	20,945	18,182	60,548	13,177	20,380	27,305	4,551	14,400	51,713
Ring-necked Duck	5,061	5,451	1,023	1,574	2,105	2,642	1,694	3,175	1,914	11,690	3,633
Bufflehead	5,412	1,555	6,072	3,136	2,732	4,865	2,026	8,825	6,378	5,900	4,690
Goldeneye	3,829	1,427	4,058	75	747	4,055	863	1,500	813	3,500	2,087
Ruddy Duck	18,018	34,270	19,551	15,509	35,610	3,544	7,322	15,200	6,940	26,200	18,216
Scoters & Eiders	2,626	54,935	12,215	2,913	2,344	3,913	9,546	8,100	5,800	4,000	10,639
Unknown Ducks	3,033	2,371	3,090	250	636	84	233	950	1,500	--	1,215
Mergansers	53,557	54,116	28,075	9,906	21,806	9,940	10,026	17,850	15,513	26,600	24,739
Coot	53,890	85,315	52,757	41,160	133,562	69,114	41,747	34,825	24,613	44,300	58,128
TOTAL*	559,804	843,444	435,403	325,816	569,455	477,173	310,410	472,330	334,702	416,116	474,465

*Estimated totals for entire State

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

1961 Fishing Regulations To Be Set After Hearings

Three public hearings will be held on 1961 fishing regulations during October. Regulations will be set during a Wildlife Commission meeting in Raleigh on October 31 after representatives of the Commission have heard expressions of sentiment from sportsmen at the hearings. Hearings are scheduled at 7:30 p.m. in the courthouse at Washington on Tuesday, October 4; at Salisbury on Thursday, October 6; and at Asheville on Wednesday, October 12. This is an opportunity to be heard, Commission officials reminded, and interested sportsmen should make plans to attend the hearing in their area.

National Guard Deer Hunt Cancelled

The popular National Guard-sponsored deer hunt at Butner will not be held this year, State Adjutant General Capus Waynick announced. The hunt, which has been held at the National Guard ranges north of Durham for the past several years, has been carefully supervised by Guardsmen. Annual federal inspections of National Guard units conflict with the hunt dates this year, and the Adjutant General explained that these inspections will require the full attention of the National Guard volunteers who have managed the hunts previously.

It Really Was Before Sunrise

First announcement of marsh hen shooting hours by the U. S. Fish and Wildlife Service showed opening time at sunrise. After the September issue of Wildlife went to press the time was changed to half an hour before sunrise. Wildlife's printing order of 70,000 takes two weeks to print.

It's Fontana For Federation Meeting

The annual convention of the N. C. Wildlife Federation will be held at Fontana Village, Fontana Dam, N. C. October 13, 14, and 15, according to Turner Battle, Executive Secretary. Feature speaker at the banquet set for Friday night October 14 will be Carl W. Buchheister, President of the National Audubon Society, who will present one of the famous Audubon Nature Tours lectures. The Federation will present an award to North Carolina's outstanding outdoor writer.

The quarry is the white-tailed deer, evasive and fleetfooted, a challenge to stalk or to outwit along a trail and a target known to induce sieges of "buck fever" among uninitiated hunters.

THE DEER HUNTING SCENE

Photo Feature by Jack Dermid

IT is early morning in North Carolina. Wisps of mist rise from the mirror-like waters of East Lake as hunters leash their dogs to the gunnels of their outboards for an adventure on wild islands. A jeep dodges stumps in a piney woods, stopping from time to time to place hunters on stands. At the edge of a pocosin, black and tan hounds sound off upon striking a fresh trail. The race is on.

In the Piedmont, an archer in the Uwharries mixes with the shadows, becomes a part of the forest itself. High on the slopes of Mt. Mitchell near Camp Alice, a hunter is startled by the overwhelming crunch of his boots on frozen snow. He finds a sheltering downfall near a gap, and the white world is again silent.

The North Carolina deer hunting scene is indeed varied, as varied as the country and the hunters themselves. And today, there is more opportunity to bag a deer in the State than at any time during this century. The Commission's extensive restocking program of past years has returned deer to habitat long void of them and given low populations the boost necessary for them to thrive. Better law enforcement has reduced illegal hunting to the point that it is no longer the major factor limiting herd increase.

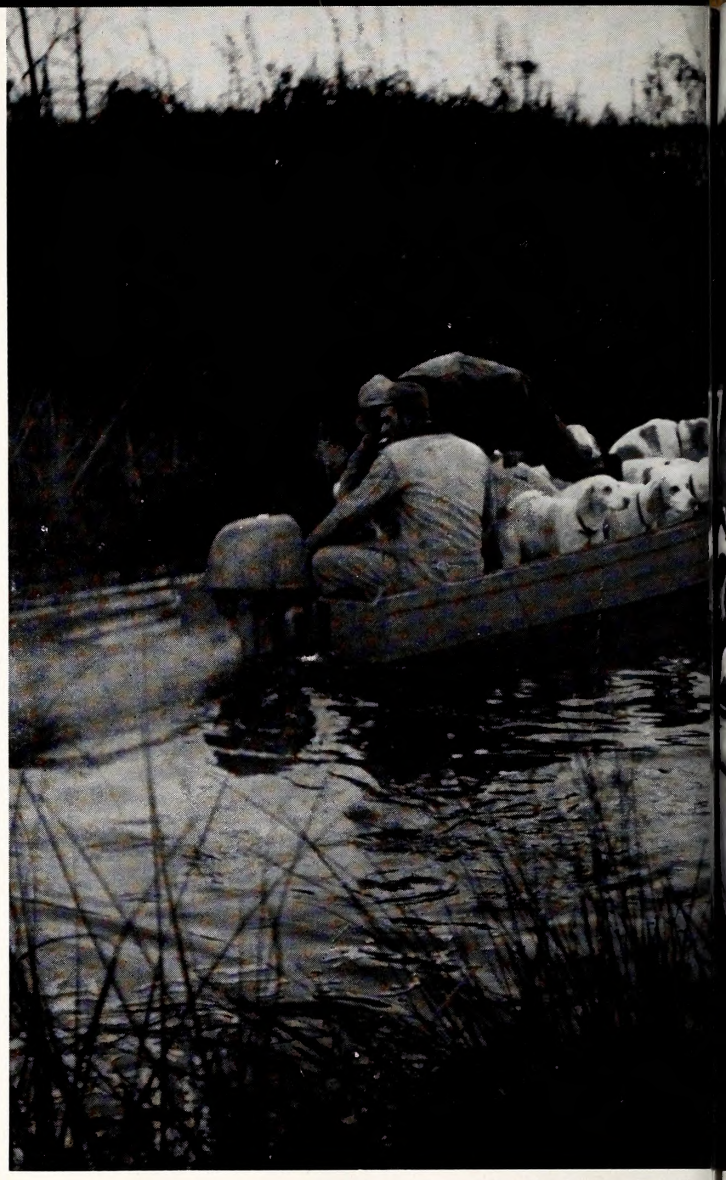
The following pages of photos bring a small sample of the deer hunting scene to your armchair. The whole picture is as big and exciting as the great out-of-doors.

The presence of deer sign, such as this track, quickens the pulse of the hunter, shows him where to release his dogs or choose a stand, and gives him assurance of possible success.

The long wait. Hours of waiting on a stand are an essential part of the sport. Fidgetiness, too many smokes, or a nodding head are poor tactics. Good hunters are still and ever alert.

THE DEER HUNTING SCENE
(CONT.)

Deer Hunting in North Carolina is as varied and exciting as the whole out-of-doors. On opening day, these scenes will be repeated time and time again.



A dawn at East Lake finds two boatloa islands. In many areas of eastern Nort impenetrable thickets. Hunters on sta

Deer hunting with bow and arrow is becoming increasingly popular with Tarheel sportsmen. The archer, with his camouflaged suit and face, depends on stealth to get within range.

During deer season, this country road near Camp Butner carries a peak load of traffic. Some hunters never leave road, others stay in sight of it. Protectors are always on the job.

hounds being ferried to wild, marshy
dogs are necessary to chase deer from
race, hoping it will come their way.

Biologist at work. Information about the condition and productivity of herds enables the Wildlife Resources Commission to set sound hunting rules and devise management practices.

End of a successful day. The hunter is tired, the hound is tired, but who wouldn't live it over again? The Commission's management program is providing more sport for more people.

hunter gets a shot and misses, he loses his shirt tail, a
ctice in North Carolina that is as traditional as deer hunt-
These hunters enjoy the ceremony as much as hunting.

The Skipper

Conducted by Duane Raver

- SURVIVAL
- FUNDAMENTALS
- BOATING GUIDE
- WEATHER RULES

Survival

YOUR first objective if and when you find yourself in the water in trouble, is to stay afloat and stay alive. You don't stop to analyze why you're there, what caused the accident or even how you might salvage the boat. Unless you can save yourself, all else becomes unnecessary. Your greatest first enemy is not the water itself but panic—fear, loss of common sense, irrational behavior. Panic can easily kill you although you may well be within reach of safety.

None of us is ever prepared for accidents. They rush upon us without warning and the events which follow fuse themselves into a blur of dream-like happenings. But there you are—pitched into deep water, boat gone, no life jacket on, buoyant cushion floating out of reach or missing. What do you do? If you're normal, a fierce struggle begins; arms flail the water, legs kick wildly, you take a mouthful of water, you sink, you're done for.

Yet, without the surge of fear and the struggle that follows, you could float with a minimum of effort—even though fully clothed. You could stay up practically indefinitely unless exposure or chill water catch you. You must know that you can float before you're in trouble. The only way to know this is to jump in the nearest pool or lake, fully clothed. Try in water 4 or 5 feet deep first, then as your confidence builds up, move to water over your head. Naturally you'll take no undue chances with this testing, but you simply can't do it unless you're in water over your head.

Heavy clothing does not necessarily "pull you down." Once you're in the water it is no longer a weight problem. It will hinder swimming or movement, and should be shed for easier moving. The average human body—even fully dressed—floats naturally. If you remain motionless, arms down to the sides, legs straight down, head up, the water level will be about the middle of your forehead. This means that air is less than eight inches away from your nose when you're submerged. A gentle kick of the feet or downward pressure of the hands and up you come—unless you panic.

First, take a deep breath, bend your back in a "jellyfish" position, head under water as if you stooped over to tie your shoe. The air in the lungs acts to buoy you up even further and you should have a supply of air to last until you remove one shoe at a time. The rest of the clothing follows, a piece at a time, very slowly, never hurrying or becoming excited.

Unencumbered, you put your head back, bring your tummy up, breathe in shallow breaths, extend your arms upward and outward, and you float! Any

Believe it or not, capsizing a well-designed boat is quite a trick. When it happens, jump clear and don't be caught . . .

undue struggle and down you go. If water enters your mouth in any of this process, spit it out. By using a simple frog kick and sweeping arm stroke, you could cover hundreds of yards with very little effort. You can survive.

Back to Fundamentals

Such a simple operation as starting an outboard motor hardly seems worth bringing up in a column aimed at safer boating. But this is where safety starts—with the starter rope or ignition button of your motor.

It takes only a moment to check the gear position of the motor and the forward speed setting. If the outboard is in anything *but* neutral and slow speed, don't crank 'er up! On remote controls, be sure you know the neutral position of the lever. Double check it with the control on the motor itself. To start a motor in forward or reverse is asking for real trouble. A baulky engine may start a little easier with a slightly "faster" setting of the speed indicator. Be careful! Don't start it on "fast" under any circumstances. Have the motor straight with the boat—not turned either way, have the boat secured either by a line or held by a person on the dock or in the boat until the engine starts and is idling all right. Then proceed carefully away from the dock or shore. If the water depth is unknown at your starting location, check it. Be sure there's enough water under your motor. These seem trivial to the seasoned skipper, but a moment's thoughtlessness can cause trouble.

Leaving a dock or launching site is always a tricky procedure whether you realize it or not. Push off the dock slowly, always under power (you're helpless adrift) and proceed with caution. Full throttle should never be applied until well out away from the dock.

Approaching a dock with any breeze at all is another time for constant thought and attention. You've seen boaters come in fast, cut the motor and drift in toward the dock. The best they can hope for is a battered bow or banged-up dock. Come in under power and use the neutral and reverse gears in coming along side the dock. Don't shut off the engine until the boat is secured fore and aft. Don't unload passengers or gear until the engine is off. Simple? Yes, but mighty important if safe boating is to be assured.

"Recreational Boating Guide"

The U. S. Coast Guard has prepared a fact-filled guide to safer, more enjoyable boating. Its approach to the subject of recreational boating in non-technical and, so far as possible, layman's language has been used. For your copy, send 40 cents along with your name and address to the Superintendent of Documents, Government Printing Office, Washington 25, D.C., and ask for "Recreational Boating Guide."

Weather Rules

The U. S. Department of Commerce, Weather Bureau, reminds boaters about safe boating weather rules in a one-page bulletin available from your local Weather Bureau station. Weather, good and bad, is always with us. Read and heed this informational sheet.

The type of water conditions that you are likely to encounter depend on wind direction and velocity to a great extent. The weather may be perfectly clear yet winds may be dangerous. Check local conditions carefully and observe the wind velocity pennants displayed at coastal stations.

. . . under the boat. Right it slowly, slide over the side carefully, and it will take you home this way. Perhaps . . .

. . conditions won't permit righting it; then hang on in the manner shown below. Whatever you do, stay with your boat.

Photos by Duane Raver

LOOK!
No Stocking

by Vernon Hacker and Robert Heding
Reprinted from Wisconsin Conservation Bulletin

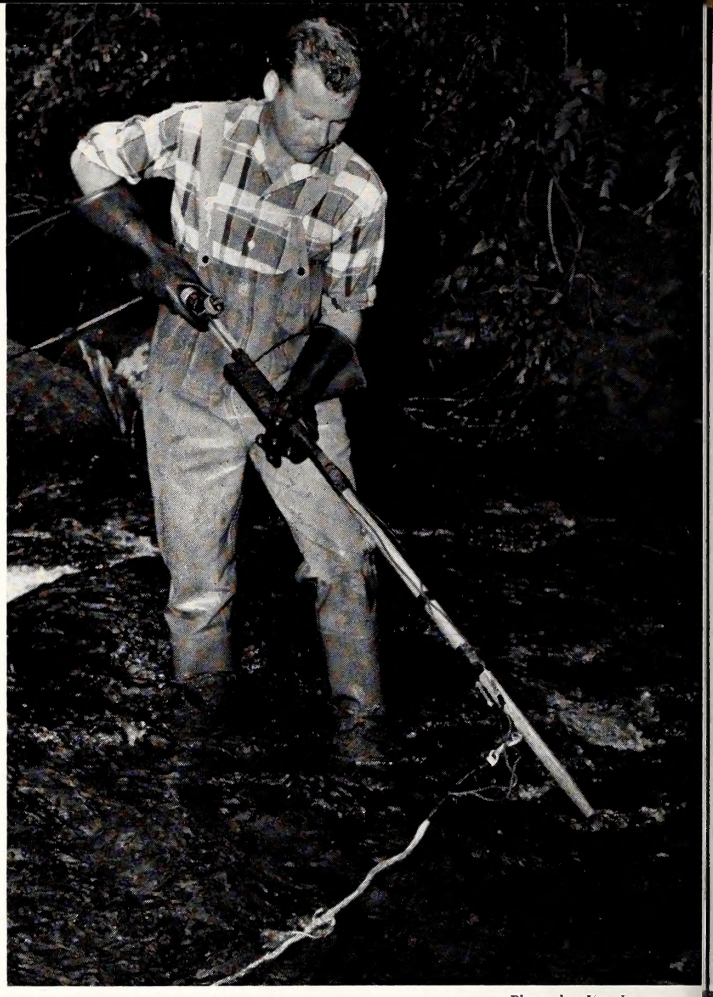


Photo by Jim Lee

Electrical shocking equipment, a valuable tool in fisheries management, has revealed some surprising facts about trout.

Some Wisconsin streams that have not been stocked for years now carry abundant trout —as many as when they were stocked, or even more. This important article outlines a scientific approach to stocking.

"HOW many trout were planted in this stream?"

"Where were they planted?"

"Why aren't browns planted instead of rainbow?"

"What happens to all the planted trout?"

These are a few of the most familiar questions asked the fishery worker. The first two questions are readily answered, but answers to the third and fourth are not easily obtained. In fact, answers to various aspects of the questions are being avidly sought by fisheries researchers today.

In the early days of hatchery production, it was customary to plant trout in every little brook called a trout stream. Similarly, it was common practice for anyone wanting trout to hitch up the team, pick up several cans of fry at the hatchery and plant them in local streams. The horse and wagon are gone; the milk can for transporting fish is replaced by modern tank trucks; and now methods *are* available to check every rivulet to see if it *is* a trout stream.

Every stream was planted with trout because no means were available to determine whether or not the stream had a native trout population, or whether the stream was suitable for trout. Most people assumed that even if there were native trout in the streams, they were all caught during the fishing season and none remained. It was then thought that the only way to have trout in our streams was to build bigger and better hatcheries, and to continue stocking fish in terms of millions.

This program grew bigger, and supposedly better. It is true that better hatchery equipment and procedures were needed for this program, but also needed was a better utilization of the hatchery product. The time soon came when it was necessary to evaluate this program to find out whether or not the stocked fish were needed, and to determine what trout nature itself was providing, unassisted by man.

Preliminary investigations made use of what is commonly known as the "mark and recapture" method. Thousands of hatchery trout were fin-clipped and stocked at recorded locations. Many fishermen were contacted to gather information on the harvest of these fish. In addition to marking there came into being a method where fish could be harmlessly checked and returned to the water. Electrofishing or shocking equipment put into operation within the past 10 years has provided a wealth of information on the composition of the fish population in our trout streams. With it, it is possible to obtain samples of up to 90 percent of the total trout population in a given stream.

As an example of how the shocker unit was put to use, let's look at what was accomplished in a

program recently completed by fish management personnel of the 17 counties in east-central Wisconsin.

These personnel were hired to manage the fishery resources but found themselves in an unhappy position similar to the store owner who does not have an up-to-date inventory. They were required to properly manage the streams without accurately knowing what species were present, if natural reproduction occurred and whether or where the hatchery trout survived. As in the case of the store keeper, inventory was the first order of business before successful management could begin.

A definite time table of operations was prepared. In a four-year period, 175 trout streams were checked in 502 different locations. Over 100 miles of stream were actually shocked.

As a part of the study to evaluate hatchery plants of trout, all fish stocked in a particular stream during the year that was surveyed were marked by the removal of a fin. With this technique, all trout taken could be instantly identified as either a trout of hatchery origin, or one born and bred in the stream.

During this period, a total of 148,000 hatchery trout identified by marks were stocked in the sur-

Photo by Jack Dermid

In good streams, native trout are much more abundant than anglers realize, and stocking provides only short-term benefits.

vey streams. Electro-fishing with the shocker started within three days to three months after the trout were stocked, paying particular attention to the locations where the trout had been placed in each stream.

The results were astonishing—or should we say, shocking—not only to fish management men, but to the hundreds of sportsmen, school children and just plain interested spectators who witnessed the surveys. Every interested individual was invited to observe the shocking operations. Survey schedules were well publicized in all local papers and many of state-wide scope. The inventory surveys were designed to produce a sound basis for management and each person owning a share in this great natural corporation was informed in order to see first-hand any basis for change in management procedure.

Over 27,000 trout were taken with the shocker unit, of which only 1,254 or 4.6 percent were hatchery-stocked fish. Admittedly, this does not tell how many of the original 148,000 stocked hatchery trout were caught by fishermen, but it does reveal three important things: (1) the planting of hatchery fish provides only short-term benefit; (2) very few hatchery fish survive to reach spawning size, and (3) native trout are much more abundant than anyone previously had imagined. These facts are even more important since most of the surveys were made *after* the trout-fishing season had closed, and fishermen had harvested their annual quotas.

Surprisingly, many fishermen who had previously complained the loudest that they should get more trout for their streams changed their thinking after they observed the surveys. Many of them helped stock the streams and noted the conspicious absence of hatchery fish and the abundance of native trout when the stream was shocked. Now the same fishermen suggested that possibly planting was a waste of money which could be best put to use to produce more native trout through stream improvement.

The shocker surveys produced other interesting facts. Most all streams surveyed had sections which contained abundant spring flow. It was these sections which contained the largest numbers of native trout and where the stocked trout were absent.

As a result of these surveys, hatchery trout are now stocked at locations where native trout are fewer in number, generally in the downstream areas.

Now, let's look at some of the locations where hatchery trout taken in the surveys did survive compared to the stream sections where they were absent.

Many streams in Wisconsin are capable of supporting limited numbers of stocked trout all year around, and yet are unable to produce native fish. Most of the 1,254 hatchery trout captured in the shocker surveys were found to be inhabiting stream sections where native trout were few in number. Under this category we can place the stream which contains springwater, but where it is not concentrated enough to enhance successful hatching of trout eggs; the stream where the natural gravel spawning areas are buried under blankets of silt;

Stream improvement practices, designed to provide additional food and cover for trout, will often produce better fishing.

or where the spring areas are so trampled and widened by cattle and hogs that an adult trout cannot swim to it unless he suddenly changes his habits and swims on his side like the halibut.

Because numbers of native trout are few or absent in downstream sections, hatchery trout do not find the intense competition which native trout provide for food and hiding spaces. With native trout absent, an abundance of food is available, and hiding areas are easy to find. In this stream, hatchery trout find "the livin' is easy" and can often survive to a ripe old age if not caught immediately.

On the other hand, consider the plight of the poor hatchery trout stocked in a stream where every undercut bank and every pile of brush shelters at least one or more conditioned native trout, who, by the way, have to be pretty tough customers to survive even to 6 months of age. If a morsel of food drifts down the stream, or the undercut bank is vacated, you can bet your bottom dollar that the native trout will reap the harvest—not the hatchery fish.

Streams which contain good native trout populations now are not stocked at all. In the streams of east-central Wisconsin, many were found in this category. In fact, streams were found that contained so many trout that the fish were actually stunted. The addition of hatchery trout only served to accentuate the problem, rather than solve it.

In a number of streams where native trout populations were found to be more than adequate in a first survey, hatchery trout quotas were at first eliminated on a trial basis. Four years later, the same streams were re-surveyed, only to find *the same size or larger populations than when hatchery trout were stocked.* In addition, many of the streams surveyed in east-central Wisconsin had never been stocked, and yet, contained abundant numbers of trout.

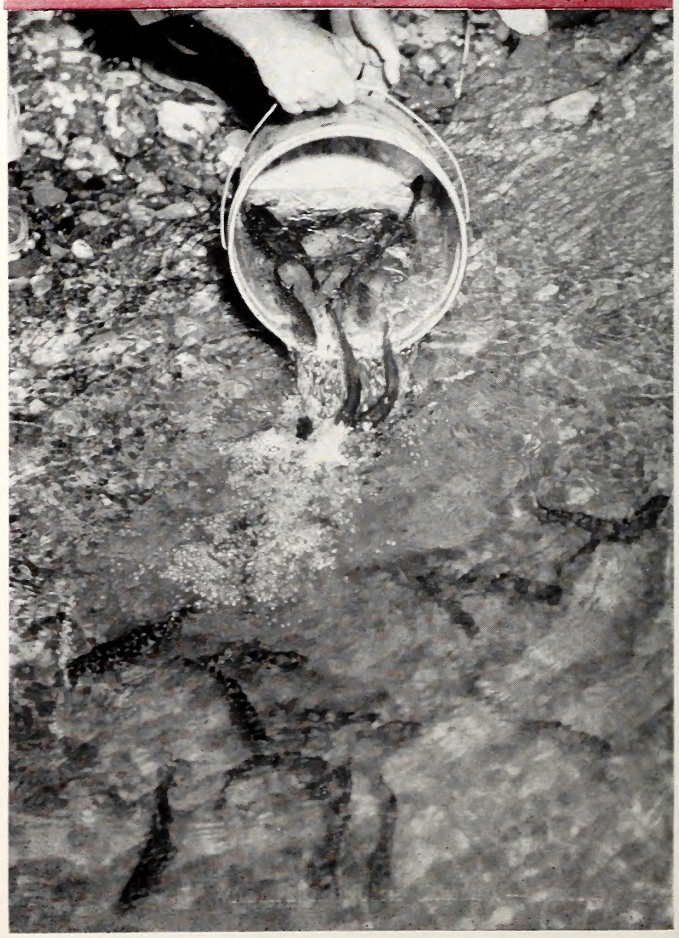
We urge you, as a sportsman, to make it a point to attend one or more shocker surveys and see for yourself the numbers of native trout present in many of our streams. Perhaps you too will insist that hatchery trout be better utilized than to compete with good populations of native fish. Then, the native trout can reproduce, survive and grow in the good trout streams, and the hatchery fish can be used to stock our moderate and marginal streams, and our trout lakes.

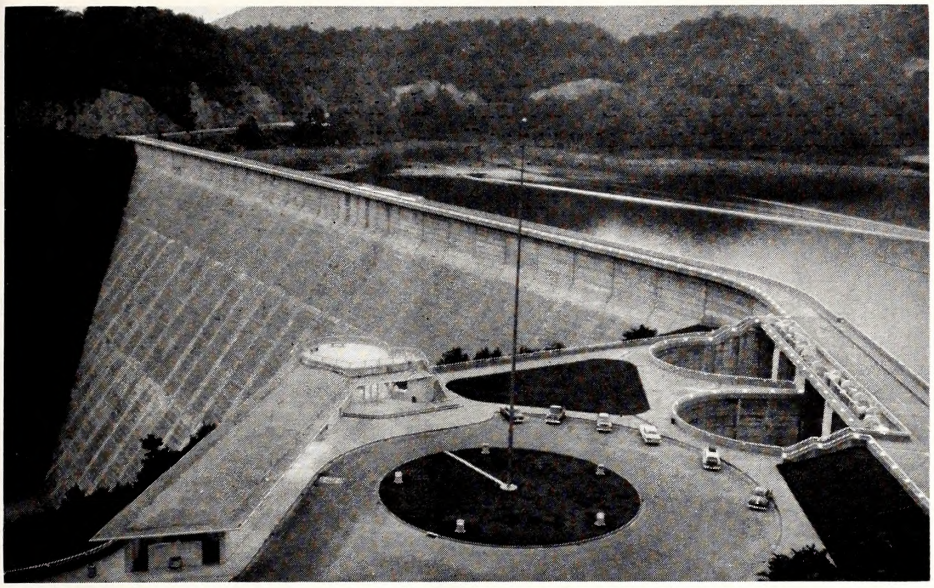
Why stock hatchery fish where native trout abound? Many anglers demand it. But ask the died-in-the-wool trout-stream fisherman what he prefers to catch, and it'll be the native trout every time.

No, we don't plan to stock such waters any more. Through proper management of the habitat and protection of the natural resource, more native trout will be produced. As a result, you the sportsman will be the one to benefit most, with more trout in the creel and your conservation dollar more wisely spent.

Trout stocking has a place in management, but the dumping of trout where fishable native populations exist is wasteful.

Photos by Jack Dermid





State News Bureau Photo by Shafter Buchanan

October Public Hearings Set For 1961 Fishing Regulations

Three area hearings on the 1961 fishing regulations are scheduled in October. These hearings are designed to give sportsmen an opportunity to make comments and suggestions on proposed regulations for the 1961 season.

The Wildlife Resources Commission will meet following the public hearings to officially adopt the new regulations.

The three hearings are each scheduled for 7:30 p.m. at the courthouse in a central city in the state's three regions. Dates and places for hearings are:

Oct. 4 (Tuesday), Washington
Oct. 6 (Thursday), Salisbury
Oct. 12 (Wednesday), Asheville

Interested fishermen are urged to attend these hearings.

North Carolina Wildlife Federation To Meet at Fontana Village

THE annual meeting of the North Carolina Wildlife Federation will be held at Fontana Village October 13, 14, and 15.

Delegates from county wildlife clubs will assemble at the mountain resort to conduct annual business sessions.

Highlight of the three-day meeting will be an address by Carl W. Buchheister, president of the National Audubon Society, during the annual banquet on Friday, October 14. Mr. Buchheister will give an illustrated wildlife lecture.

Another feature of the program will be an award to the outdoor writer of the year.

The Wildlife Federation is a state-wide organization of local wildlife clubs, and is an affiliate of the National Wildlife Federation. Executive secretary of the North Carolina organization is Turner Battle of Rocky Mount.

The Federation has long been active in wildlife affairs in the State, representing organized hunters and fishermen in hearings before the Legislature. Awards are made by the group to outstanding 4-H Club and FFA members as part of the Federation's youth activities program.

PROTECTOR OF THE MONTH

Wiley William Danner

Wiley William Danner was born on June 23, 1931, in Boone, Watauga County. He is the son of Mr. and Mrs. George C. Danner. Mr. Danner was educated in the public schools of Watauga County, and entered the U. S. Army in 1948, was discharged in 1950, and was recalled to active service in the 1950 Korean conflict.

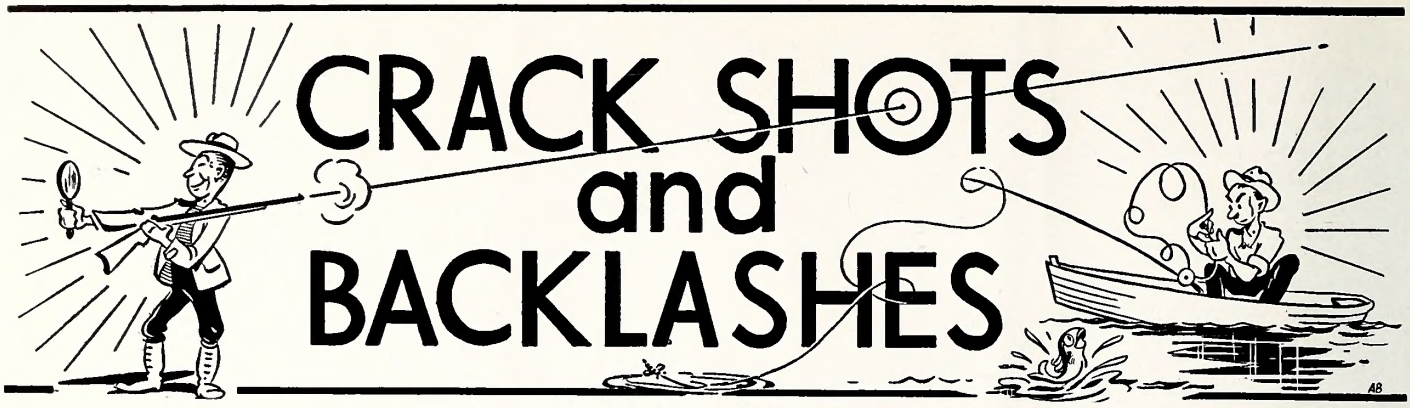
Mr. Danner attended the 1953 session of the Wildlife Protectors' Pre-Service Training School, and was appointed Jackson County Wildlife Protector on July 1, 1954. Since that time he has attended the Basic In-Service, Intermediate, Advanced, and Special In-Service Training Schools at the Institute of Government in Chapel Hill. Prior to his employment with the Commission, he was with the Southern Agricultural Insecticides Company of Boone.

Mr. Danner is married to the former Nancy Shull of Boone, and they have two boys, William and Robert. The Danners live in Sylva, North Carolina.

ENFORCEMENT RECORD FOR JULY

HUNTING & FISHING:	
Persons checked	39,615
Total prosecutions	875
Total convictions	865
Total cases not guilty	2
Total cases nol prossed	8
Total fines collected	$3,777.80
Total costs collected	$6,566.05
BOATING:	
Boats checked	9,649
Total prosecutions	373
Total convictions	367
Total cases not guilty	3
Total cases nol prossed	3
Total fines collected	$1,297.50
Total costs collected	$3,114.45

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

The title of this section, "Crackshots and Backlashes," is apt. The August issue contained a real backlash—Charles Elliott's column reprinted from the Atlanta *Constitution,* together with editorial comment regarding it. This caused a great deal of consternation and ill feeling among folks in western North Carolina, and especially in Swain County.

The Wildlife Resources Commission, and its official publication *Wildlife in North Carolina,* have maintained since their beginning a policy of presenting both sides of controversial issues whenever both sides are willing to present their arguments.

Although much has been written about the Fontana Road controversy, we chose to present Charles Elliott's column because we knew that he has visited the area and is familiar with a wilderness that almost all national conservation organizations are seeking to preserve.

Perhaps Elliott was intemperate in his condemnation of the tourist industry, but to condemn the tourist industry was not the purpose of his column. He stated the principle involved thusly: "Today, there are all too few spots left between the oceans where a man can stand alone with himself and his Maker and absorb the strength and the beauty of the living wilderness as a tonic for his soul."

To the people who were offended by the use of such phrases as "tourist traps" and "Japanese-made trinkets" we sincerely and publicly apologize, and retract our endorsement of that part of Elliott's article which might have been offensive.

The following letters are among many communications that we have received on the subject, and we feel that they present both sides of the question.

DEAR SIRS: In your letter to the editors column in the August issue of Wildlife, there is a report on an interview with Charles Elliott, of the Atlantic Constitution. The distorted, confused and biased opinions stated in this interview would seem to me not to deserve publication in your magazine.

When the mountainous area of Fontana was acquired by the TVA and later the National Park Service, the Federal Government agreed to put a road through this area to replace the one built at the expense of the Swain County tax payers and which was being inundated by the Fontana Reservoir. The state has already built an access road to this area expending many thousands of dollars of North Carolina tax funds. The Federal Government is committed by contract to build their share of this road through the park.

Our area is of course, a tourist attraction and many of our citizens make their living providing excellent facilities for these tourists at reasonable prices. I have no tourist accommodations myself, however, I strongly resent the efforts of our good citizens being termed "the tourist traps." I would like to remind the editors of your magazine that the people of Swain County and the Swain County Commissioners are the ones who are demanding that the Federal Government fulfill their contractural obligations.

Opening up this area to highway traffic by a road skirting the lake would provide room to remove some of the pressure of over-loaded current park facilities. Since this terrain is so rugged, only a small portion of the people passing through it would stray farther than a few hundred yards from the proposed camp ground and marina. At present this area can be approached only by boat. I feel that the better interests of the people of North Carolina and the many visitors to this area would be better served if the proposed road allowing them reasonably convenient access to this beautiful area is completed.

The "every dodge" being used by the Park Service, it would seem to me, is simply an immoral bureaucratic effort to prevent the Federal Government from fulfilling its obligations. If this road is built, it will be to the advantage of hundreds of thousands of visitors who will travel it each year, instead of a handful of fishermen "sporting four-day beards." I strongly disagree with your editor when he says "we think Charles Elliott knows what he is talking about." I think Charles Elliott has talked with a misguided fervor and an abysmal shortage of facts.

I certainly feel that a publication such as yours, purporting to represent the people of the state is far afield when it devotes a full page to an article which is in detriment to the interests of the people of the state. WILLIAM E. MITCHELL, M.D., BRYSON CITY, N. C.

Another Bryson City correspondent sends the following comments:

DEAR SIRS: In your August issue, your magazine reprints an article which was written by Charles Elliott, outdoor columnist of the Atlanta Constitution, and

which appeared in that Georgia newspaper.

That article is packed with untruths, half-truths and distorted truths and makes grave, even shocking charges against the citizens of Swain County and against federal officials.

If your magazine had reprinted that weird article without approving its contents and as an expression of one man's views, however, uninformed and reckless, our quarrel would be primarily with its author and the newspaper that printed it.

We might wonder why the "official publication of the Wildlife Resources Commission" deemed it decent, even appropriate to give circulation to a story that perverted the facts and that did monstrous injustice to the citizens of a North Carolina county.

Unhappily, Editor Amundson was not content merely to reprint Mr. Elliott's masterpiece of misstatement. He wrote an introductory note in which he unreservedly endorsed the views and underwrote the truth of the alleged facts of that article: "We think Charlie Elliott knows what he's talking about." In short, Editor Amundson made Mr. Elliott's views his own views and the views of the Wildlife Resources Commission of North Carolina.

Mr. Elliott's ignorance is understandable though not defensible. As an outsider, he could not be expected to gain all of the facts from four days spent in fishing on Hazel Creek and from a conversation with Mr. Amundson.

But Mr. Amundson's ignorance is little short of reprehensible. He is the editor of an "official publication" of one of the agencies of our state government. He can get the facts by studying the proposed route of the promised road on the north shore of Fontana Lake. He calls his column, "Crackshots and Backlashes." I fear that is a misnomer. It could more aptly be called, "Crackpots and Hot Flashes."

In his truly grotesque article, Mr. Elliott states that the proposed and promised road will "cut through the middle of one of the most primitive regions remaining in the Southern states." By way of emphasizing his ignorance, he hastens to add that it "will bisect the entire south slope of the Smokies along the north shore of Fontana Lake" and that it will result in "the destruction of this remaining wilderness." Incidentally, any person with the scantiest knowledge will instantly see that it would be physically impossible for a highway "along the north shore of Fontana Lake" to "bisect the entire south slopes of the Smokies." It would be just as sensible to say that a highway skirting the borders of Atlanta would bisect Atlanta.

The citizens of Swain County who have long been advocating the construction of this promised road are branded as operators of "tourist traps" whose sole interest is in putting "a few more dollars into their own pockets." North Carolina Congressmen who have supported us in our efforts are accused of "applying the well known political screws to the National Park Service."

This is not all. Evidently thinking that he is paying a compliment to the National Park Service, Mr. Elliott asserts that the "Park Service seems to be using every dodge to save this south slope in its primitive conditions." Unknowingly, he is actually charging the National Park Service with a breach of good faith.

The area which will be traversed by the proposed road is not "wilderness." It is true that at the present time it has few inhabitants. They have been dispossessed and forced to leave the communities in which they had lived for a long time, some for many generations.

Most of these lands were not intended originally for inclusion in the Great Smoky Mountains National Park. The probabilities are that they would not be within the park boundaries today if the Tennessee Valley Authority had not decided to construct the Fontana Dam.

At the time when the TVA entered the picture, there was a road between Bryson City and Deal's Gap. This road had been originally built by Swain County. Later it was incorporated into the state highway system.

All of the lands between the Tuckaseegee River and the park boundary in that area had been extensively and intensely lumbered. They included many settlements with homes, stores, post officies, schools, and churches. The owners of these lands paid local taxes. To characterize these lands as being "wilderness" is to show a shocking ignorance of the facts.

The Fontana Lake would have flooded sections of the highway between Bryson City and Deal's Gap. That imposed upon the TVA the inescapable necessity of providing a replacement highway.

The TVA decided to acquire all of these lands, dispossess the residents, transfer the property to the National Park Service and shift to that agency the responsibility of making acceptable arrangements with Swain County and the State of North Carolina for a substitute road.

In the ensuing negotiations with the National Park Service, the officials of Swain County tried to be most understanding and most cooperative. Naturally enough, they viewed with some concern the withdrawal from local taxation of such a large amount of taxable values.

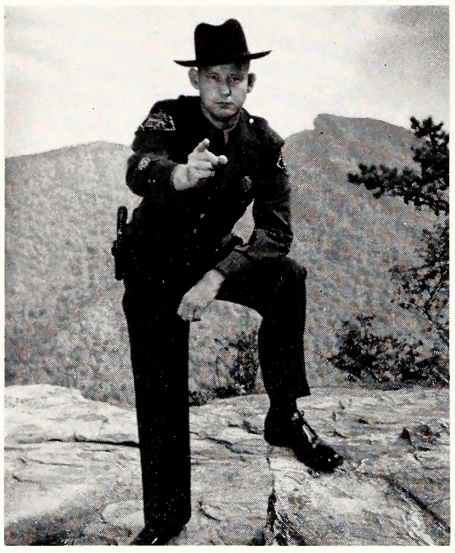
As a consequence of the discussions, the National Park Service agreed that a highway to replace the old highway should be constructed by it. The only condition that it imposed was the natural qualification that due to war conditions it could not proceed immediately and that it would not build the highway until the required funds were made available by congressional appropriations.

The Swain County officials accepted this understanding in good faith. We have tried to be patient with the National Park Service. We have watched the building of roads on the Tennessee side of the park while our promised road remained on the planning boards.

We feel now that after a lapse of seventeen years, we are justified in insisting that a start should be made without further delay on the construction of this promised road.

My county has paid a heavy price for the establishment of the Great Smoky Mountains National Park, and the construction of the Fontana Dam. In 1920, the population of Swain County was in

This inviting cove along the north shore of Fontana Lake leads to Hazel Creek, one of the few really wild trout streams in the State. It can be reached only by boat.



"Have you purchased your new hunting license?"

excess of 13,000. Today it is less than 8400. Residents have been driven from the lands which they occupied and upon which they obtained their livelihoods. They have gone elsewhere to establish their homes. Three out of every four acres in Swain County are now in government ownership and wholly exempt from mandatory local taxes.

At Fontana we have the highest dam in eastern America. None of the cheap energy generated by this water power development is consumed in Swain County. None of it contributes to the prosperity of our county. It is transmitted to enrich other states. What we receive in payments in "lieu of taxes" is hardly a tithe of what we would have obtained if this water power resource had been developed by private enterprise. This dam furnishes good fishing. We welcome the anglers who come from Georgia and elsewhere to fish in its waters.

Swain County has only one way to recoup the sacrifices which it has made. That is through the development of our tourist industry. Our lumbering industry has been destroyed. Our water power is being exported.

The promised road will mean much to our economy. It should stimulate our tourist patronage. Because we now press for its construction, we are charged with being the operators of "tourist traps."

The only true adverse effect that the pledged road may have on fishing is to increase the number of fishermen who angle in the streams that it will make more accessible. It will open up more fishing to more people. But isn't that the aim of the North Carolina Wildlife Resources Commission?

May I as one who has fished much in these waters and is familiar with all of its streams observe that if Mr. Elliott and Mr. Amundson wish to convert these lands into a "wilderness" then all fishing should be prohibited? Native fish, unfished and uncaught, are just as essential to a "wilderness" as unhunted bears and grouse, uncut trees, unpicked flowers. I am confident that any such suggestion, seriously proposed, would result in expressions of holy horror by the North Carolina Wildlife Resources Commission.

Because Mr. Amundson has involved the North Carolina Wildlife Resources Commission in Mr. Elliott's wholly imaginative facts and insupportable conclusions, I close by asking a few questions which are not wholly pointless:

Does the Commission truly believe that the sponsors of this proposed and promised road are operators of "tourist traps?"

Does it feel that its "official publication" should reprint with editorial approval an article written by an outsider who makes such charges?

Does it feel that its proper function is to intervene in a hostile role to abort an agreement which a North Carolina county reached a long time ago with an agency of the federal government?

In short, isn't the Wildlife Resources Commission through its "official publication" meddling in a matter that does not lie within its proper official concerns and lending itself to charges that do a grave injustice to the citizens of a North Carolina county?

It could be that in finding the true answers to these questions, the Commission may conclude that its "official publication" has been unfair to the people of Swain County, that one of its employees has been guilty of unpardonable meddlesomeness and ignorance, that some apologies, freely and fully tendered, are in order and that the Commission should issue appropriate directions to the effect that its employees stick to their own knitting. KELLY E. BENNETT, BRYSON CITY.

In regard to Mr. Bennett's concluding paragraph, another correspondent has some comments regarding the Wildlife Commission's obligation to the sportsmen of North Carolina.

DEAR MR. PATTON: I have just heard about the controversy in Bryson City as a result of the article quoting Charlie Elliott. I certainly hope that the Commission will not apologize for anything. If the Commission is not able to speak freely or have an opinion on matters of vital interest to the sportsmen of North Carolina then the sportsmen have no representation within the state. Far from being an illogical agency to speak on matters concerning the management of the Great Smoky Mountains National Park, I think that the Wildlife Resoruces Commission is the one state agency which should speak on such matters. The park was not founded to provide highway systems or to produce tourist revenue for the municipalities which surround it. It was founded to preserve natural resources and, thereby, to provide recreational, historical and aesthetic enjoyment for all citizens. While the State Highway Department or the Board of Conservation and Development are logical agencies to speak when economical considerations are involved, the issues here are those of conservation and recreation and only the Wildlife Resources Commission is in a position to give objective answers on these issues.

Please don't bother to acknowledge this letter since I know you would not want to be quoted on this matter at the moment. I think you will only need to look at the file in the Governor's office to see that you are speaking for an overwhelming majority of the sportsmen of North Carolina. If you do not represent us no one will and I cannot tell you how grateful I am that we have a state commission which does represent our sportsmen and is not dominated by political pressure groups. I will appreciate it if you would pass this along to Mr. Amundson, who, in my opinion, publishes the finest wildlife magazine in the country. I would like to express my gratitude to both of you and all members of the Commission for their stand in this matter and I think you will find my attitude is shared by practically every sportsman in North Carolina. HENRY WILSON, JR., LENOIR, N. C.

P.S. If we forfeit the right to have an opinion on this matter we are in essence forfeiting the right to make recommendations on hunting and fishing on federal lands. With National Forests set up under multiple use concepts specifically allowing hunting and fishing and with National Parks allowing fishing, the Commission is the only voice sportsmen have to see that their interests are protected. If the Commission can't represent sportsmen in the Smokies or in the National Forests, they will have no representation and once we disclaim this right in the Smokies it will be that much easier for the Forest Service to run over us in the National Forests by silting streams, killing mast trees to grow pines, etc.

Shooting Doves Over Bait?

DEAR SIRS: Was most pleased to see pictured in August issue of Wildlife the picture of Mr. Ray A. Overcash of Moore County. In years past I have had occasion to call on Mr. Overcash, and have found him to be most cooperative.

Now that the dove season is approaching I am wondering if there are others that have had the same heartbreaking experiences that my husband and I have had. We live in the village of Niagara on lots that measure approximately 200 feet by 200 feet, and the back of the lots border onto an open pasture. Beyond the pasture is a stream of water passing through a heavily wooded section. For a period of twelve years my husband and I have made it a practice to feed the birds that come

Autumn in the mountains is wonderful anywhere, but in good grouse country, it takes on a special flavor. Grouse hunting in a land that is up-side-down is rugged, exciting sport, and enjoyable siestas are part of the game. Why not give it a try.

to our lots—not bird-watchers, but for the pleasure of having them around. One year alone we used 1300 pounds of wild bird seed from our local feed store to keep one feeder supplied. Over these years the doves have found our backyard a place they like to visit and our pines have provided places for their nest. Up to this point our experiences with the doves should have been happy ones and would have been except for poor sportsmen.

Two years ago at the opening of dove season three of the local hunters who well knew of the doves that came to our feeder stationed themselves in the open pasture just below our back fence to shoot doves. On a sunny afternoon as I reached home from the office where I work I was horrified to find them shooting the doves that were on their way to our feeder. After calling to the hunters and asking them not to shoot the ones that were coming in to feed, one of the young men advised me "he was hungry," and was shooting the birds for this purpose. Needless to say, this has not been our only bad experience, or worry during dove season. There have been numerous times when hunters in shooting doves have aimed in such a direction that shot would fall on the roof of our house, fall in the yards scattering among the leaves of the trees in the yard, etc. At one time, two years ago, I called the Sheriff's Department in Carthage to ask if there was any way we could prevent the dangerous situation that existed during the days of the open season. The Sheriff was most cooperative and sent a Deputy out to our home to see just what the situation was. In fact, he came out several times. On one occasion while his car was parked in our driveway a shot was fired nearby and the pellets fell in the driveway and on the top of the Deputy's car. Another time while he was standing with us in our backyard one hunter fired an automatic rifle and I believe the Deputy rounded this one up. Once when the situation was so bad I contacted Mr. Overcash, and he rounded up one or more hunters with dove they had killed early in the morning. By early, I mean before 8:00 when I usually leave the house for business.

At times in years gone by we have counted as many as 53 doves right out from our dining room window in our backyard. For the past two years to see as many as four at one time is unusual. Perhaps, and I am quite sure, others have died from illness, etc, but I do know several were killed the one afternoon I mentioned as I saw them fall.

I notice in Wildlife that a radius of 200 yards "of any occupied dwelling house" is set up for the management areas set up by the Wildlife Resources Commission. What can be done when such a situation as ours exists? The village of Niagara is not incorporated. I know we can keep the hunters off our lots, but how can we keep them from hunting so close to private homes? Is there any ruling as to distances from dwellings in villages of this sort?

My husband and I are not hunters, but we love to fish. We have fished some in the past in the lakes at Hoffman which are convenient to us. We have found excellent fishing for bass and bream in local private ponds. We read every word of Wildlife, and look forward to the mail when it will arrive. Perhaps the hunters in other areas are not the type we have encountered in our neighborhood, and I do hope others have happier days during "dove season" than we usually have. MRS. ARTHUR D. TENER, SOUTHERN PINES, N. C.

The 200-yard rule is part of the agreement between the Wildlife Commission and the owners of the dove management areas. We agree that a few hunters behave very badly. The best way to discourage or prevent this type of intrusion would be to invoke the trespass law. Further, a couple of well-placed signs reading "baited area" might help. It is unlawful to shoot doves near bait, and a bird feeder comes under the definition of "baited area" in this case.

How Many Copies, Please?

DEAR SIRS: Please send information on how to get copies of the Eskimo book. C. S. SMITH, HIGHLANDS.

The book, *I Am Eskimo—Aknik My Name,* can be obtained from The Alaska Sportsman, Box 1271, Juneau, Alaska. The price is $3.95 postpaid.

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When Autumn Comes...

Busy squirrels scamper about the woodlands to gather and store Autumn's abundant harvest for use during lean winter months.

Color splashes across the landscape. Dogwoods sport bright red berries. Oaks, maples and sweetgum wear fall coats of reds and gold.

The full moon in October greets the Canada geese on their return to the lakes and coastal marshes.

Trout, like this rainbow, begin their upstream trip to spawning grounds. Eggs laid in late fall and winter will hatch in spring.

Family groups of quail break up. They will regroup later into coveys for winter protection.

PRINTED IN U.S.A. BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

Carolina State Library
Raleigh

Wildlife in north carolina

ten cents

november 1960

Photo by Jack Dermid

GREAT HORNED OWL

The owls by night, the hawks by day play an important role in Nature's scheme of things. Along with other predators, the birds of prey help keep wildlife populations in balance with the environment. But in rendering this valuable service, they are often condemned because they kill a few game birds and animals. In taking the sickly and the slow-witted—the individuals that usually fall to their talons—they are in effect improving the quality of hunting. The alert, the truly wild survive to perpetuate their kind, to stock the fall coverts with quality game that is a challenge to the hunter. For this, if nothing more, the hawks and owls deserve more appreciation and more protection from the business end of a gun.

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

If you have ever watched a large flock of pintails descend from the sky with a zigzagging rush and roar of wings to level off near the water and slant in for a landing on fixed pinions, you have witnessed the true beauty and grace of flight.

Even sitting quietly on the water, the American pintail (or sprigtail) is a picture of motion. The handsome male (in flight and upper right) is one of the most distinctively marked and easily recognized ducks. The female resembles a female mallard, but is more slender with a longer neck and tail. The pintail is one of the most common wintering species in eastern North Carolina. It occasionally appears inland. Cover painting by Duane Raver.

Wildlife In North Carolina recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Illustrations by Bill Ballard

A Bird Dog Named Richard

by Cam MacRae

"HE smells birds! Yessir, that dog smells birds. Watch him work! Easy boy, eeeeasy."

Whirrrrr! The covey got up a hundred feet ahead of the dog.

"Dern him! Confound that cussed Richard! I'd shoot him if it didn't cost a dime a shell. Talk about a cat on a hot tin roof, how about a dern fool pointer stompin' on dry leaves? Richard! Come here, you mangy, flea-bitten, stupid cur."

"Don't be hard on him, Sapp. The ground's dry as a chip, and besides, those were probably Mexican quail with a hair trigger anyway."

"Don't give a dern if they were, that ape makes more noise than a freight train coming through sideways. I can't do a blame thing with him anyway cause my wife spoils him half to death. Even seasons his dog food. I wouldn't be surprised if she put garlic in it and his breath spooked the birds."

"Well, that isn't his fault."

"No, but what am I supposed to do, put Listerine in his water bucket?"

Sapp had bought Richard just before bird season.

"You know what that rascal Hawley told me when I bought this misbegotten hound from him? He said all I had to do was let him out of the car at the farmhouse, he would slowly turn around in a circle, sniffing the air, and locate every covey on the farm!"

"Maybe you ought to try that on this farm."

"I did. And got shot at for getting too close to a still. They must have weaned him on corn squeezings."

"How many birds did you kill last Saturday?"

"Kill? This gun won't shoot but 60 yards and I haven't been that close to a covey since I paid $20 for this rhinoceros."

"You want to sell him?"

"Now, friend, there are laws in this country against fraud."

"How about the guy who sold him to you?"

"He's in the hospital. They can't stop him from laughing."

"Well, wake Richard up and let's cross over the creek to that lespedeza patch."

"Richard. Richard! Richaaaard! Come on."

"If he gets his feet wet in the creek maybe he won't make so much noise stomping on the dry leaves."

"No. But the idiot will probably sneeze while he's on point."

After we had carried Richard across the creek we put him down at the edge of the lespedeza field. He immediately froze on point. Sapp was so surprised he stepped on him. Richard threw back his head and howled mightily. A single got up. He didn't get ten feet. Sapp had centered him with both barrels.

"Dead bird, Richard, fetch! Fetch! Seek dead, Richard!"

Richard was licking his stepped-on foot.

"Worthless, sorry, no account, miserable cross between a possum and a polecat! I ride you five miles, carry you across the creek, put you down on top of a bird, and you won't even walk ten feet to pick it up. The next bird I shoot is going to be the one that sold me this dog."

"Here he is, Sapp, what's left of him. You really powdered him."

But there was enough left to identify the bird. It was a field lark.

There was a yelp, followed by choking sounds, and Sapp was cramming the lark down Richard's throat feet first. Feathers stuck all around his mouth and two long tail feathers stuck up between his ears. He looked like a Cherokee on the warpath.

"He might not know what a field lark smells like, but he dern sure knows what one tastes like now."

Richard had disgorged the lark and was pointing it again.

"That does it! Let's go home."

"Richard was pointing at the lark again."

"I'm ready. Put Richard in the car trunk."

"Can't do that. He likes to ride beside me so bad that the last time I put him in the trunk he chewed a hole through the back seat."

Richard took command of the front seat between us, sitting with his front feet on the dashboard. He was panting so hard from his bout with the field lark that his breath fogged the windshield. We had to turn the defroster on.

"Sapp, if you don' mind I'd like to stop at Hipp-McBird's Sport Shop on the way home."

"Suits me. I'll get a choker leash for this birdless wonder," Sapp said with a fiendish gleam in his eye.

We parked in front of the sport shop.

"Looks like old home week in there. Old John is holding the boys spellbound with another one of his tall tales."

"Spellbound my eye! They're just waiting for him to tell the truth just once. That story he tells about how to catch walleyed pike by pouring liquor in the lake is typical. He says then any fish you catch is wall-eyed."

"Sell him Richard."

"Yeah! That's a good idea! He'd never live that down. If he came in here with his limit of field larks this bunch of jokers would really laugh him out of town. Hi! John."

"Well, well. It's the hunter home from the hill. Hi, Sapp. With all those feathers on you it looks like you might need some more shells."

"No, Johnny, old friend. I don't need shells. That fine new pointer of mine catches birds for me. I don't have to shoot them."

"That thing sitting out there in the car? No wonder he can catch birds. They don't know he's a bird dog."

"Don't talk like that, John. He might hear you. Understands every word you say."

"Well, if those are field lark feathers like I think they are, and he understands every word you say, that dog learned some new words this afternoon."

Just then Richard jumped through the car window, ran up to John, and licked him in the face, leaving several feathers on John's nose.

"Well I'll be durned," said John, "I thought I recognized that dog. You been using him for a bird dog?"

"Sure! Best pointer I've had in years."

I thought John was going to bust, laughing. He rattled the show cases with his guffaws. The crowd was grinning in anticipation.

"Son, you've been had. Really had. I gave that dog to Hawley. It was an airedale. Hawley sheared him and sold him to you for a pointer!"

That night Sapp burned his hunting coat, gave his boots to the Salvation Army, and tore up his hunting license.

I bought his shotgun for $10.

North Carolina State Library
Raleigh

Photos by Jack Dermid

Do We Get OUR SHARE?

by Otto Florschutz
Waterfowl Biologist

North Carolina lies midway down the Atlantic Flyway from the summer nesting grounds for many of our important waterfowl species. Some of the migrating birds stop and spend the entire winter; others rest for a while. What does this mean to the hunter who wishes to harvest his share of this winged resource?

EVER wonder if you've taken your fair share of the wildlife harvest? Do you hear of fabulous hunting in some other state, and wonder how North Carolina's game supply compares with what is available elsewhere? Hunting and fishing are not competitive sports, but most of us do hope that we do as well as the next guy.

Every fall a vast horde of waterfowl comes winging down the flyways from the northern breeding grounds, and in a sense we are competing with other states for our share of this feathered resource. Does the North Carolina waterfowl hunter get his share of the birds?

The Tarheel State is located midway down the Atlantic Flyway from the centers of production. Broad sounds and lakes provide attractive wintering grounds for many ducks and geese, and some areas have a wide reputation for good waterfowl hunting—some of the best in the nation, in fact.

Let's take a look at some figures, and see how North Carolina really stacks up with the rest of the Atlantic Flyway. These figures are available because of an annual survey conducted by the U. S. Fish and Wildlife Service, and a post-season inventory of waterfowl conducted by the Fish and Wildlife Service and the game agencies of the various states.

Some waterfowl species arrive at various times during the fall and winter and stay for only a few days. Others spend the greatest amount of their time here; still others never venture this far south. These situations often depend on the weather, amount of available food, hunting pressure, and the behavior of the species concerned.

Some ducks, like the wood duck, breed in North Carolina and go south in the fall. Their place is taken by northern wood ducks during the winter.

Last winter approximately 12 percent of the entire Atlantic Flyway's ducks, geese and coots were counted in North Carolina during the post-season inventory. Another 38 percent were reported from states to the south of us, meaning that most of these birds passed through North Carolina during the hunting season.

The remaining 50 percent of the birds in the flyway were not counted as far south as North Carolina. A mild winter and substantial food supplies in northern states likely accounted for this.

Last year was not a good year for waterfowl. Severe drought conditions on Canadian breeding grounds resulted in poor production, and meant a shorter season with special restrictions on some species. Faced with poorer prospects and an increase in the cost of Federal duck stamps, some hunters left their guns in the rack. Table I shows the results in birds harvested for the past two seasons, along with the number of geese, ducks and coots counted in the post-season inventory.

With 7.8 percent fewer hunters seeking waterfowl in North Carolina, the harvest actually in-

creased for Canada geese. There was a decrease of 29 percent for ducks and 57 percent fewer coots for a total decrease of 21 percent in the numbers of waterfowl harvested. The Canada goose harvest was up 22 percent.

While North Carolina hunters recorded a 21 percent decrease in harvest, the decrease for the entire Atlantic Flyway was 45 percent, and the nation's total was down 43 percent, twice the decrease for the Tarheel hunters.

The last two columns in Table I show North Carolina's percentage share of the Atlantic Flyway's hunting pressure, waterfowl population, waterfowl harvest, and crippling loss. From these figures we can see that North Carolinians made up less than ten percent of the total number of hunters in the Atlantic Flyway—yet they bagged 25 percent of the flyway's coots. On a percentage basis the Tarheel hunters took a larger share last season than they did the previous winter.

Table II lists the percentages of the various species of ducks killed in North Carolina, and for comparison the harvest by species within the entire Atlantic Flyway. In 1958-59 mallards, pintails, wood ducks, and black ducks—in that order—made up the major portion of the duck harvest in North Carolina. In 1959-60, wood ducks, mallards, black ducks, baldpates and pintails were killed in greatest numbers.

When contrasted with the harvest for all states in the Atlantic Flyway, North Carolina's portion of the various species killed presents a slightly different picture.

In 1958-59 the kill of pintails, redheads and ruddy ducks in North Carolina made up a relatively high percentage of the total flyway kill of these species. In the 1959-60 season North Carolinians took a larger share of baldpates, ruddy ducks, pintails, ringnecked ducks, gadwalls, shovellers, redheads and wood ducks.

Are we getting our share of the flyway's kill? With the advantages of good natural habitat and good management and protection, we attract more of the flyway's geese than any other state. Many of these are protected snow geese, however, so that the total goose population does not reflect the number of birds available. Yet last year we bagged nearly a quarter of the geese harvested on the entire Atlantic Flyway. This is offset, of course, by a lower-than-average harvest of ducks and coots, but weighing all factors it appears that the Tarheel hunter does get his share—and perhaps a little more.

TABLE II. NORTH CAROLINA'S DUCK HARVEST BY SPECIES

Species	Percentage of Species in North Carolina Kill		North Carolina's Percentage of Flyway Kill	
	1958-59	1959-60	1958-59	1959-60
Mallard	22.0	16.3	5.6	6.1
Wood duck	14.9	16.6	8.6	10.8
Pintail	19.0	7.3	14.9	14.3
Black duck	10.8	11.7	2.6	3.0
Green-winged teal	4.4	6.5	6.5	8.4
Baldpate	1.7	8.0	2.5	15.7
Scaups	3.3	5.8	1.9	4.7
Ring-necked duck	3.4	4.7	6.0	13.2
Bufflehead	3.8	3.8	6.7	8.1
Mergansers	2.6	3.7	5.7	6.7
Scoters	0.2	4.8	0.4	6.8
Redhead	2.9	1.8	10.8	11.6
Ruddy duck	2.2	1.9	14.0	15.7
Canvasback	2.0	2.0	2.0	6.0
Blue-winged teal	1.5	1.9	2.9	3.7
Gadwall	0.3	1.0	5.3	11.3
Goldeneye	0.4	0.9	1.1	2.0
Shoveller	0.6	0.6	6.2	11.6
Others*	4.0	0.7	80.0	13.5
Total or average	**100.0**	**100.0**	**5.3**	**6.6**

*Includes old squaw, eider ducks, and unidentified ducks

TABLE I. COMPARATIVE WATERFOWL POPULATIONS AND HARVEST

	United States			Atlantic Flyway			North Carolina			North Carolina's Percent of Flyway	
	1958-59	1959-60	% Change	1958-59	1959-60	% Change	1958-59	1959-60	% Change	1958-59	1959-60
Number of Hunters	1,979,266	1,424,028	−28.1	285,943	200,969	−29.7	20,608	18,985	− 7.8	7.2	9.5
Goose Population*	--	--	--	294,961	370,900	+26.0	152,484	148,225	− 3.0	51.7	40.0
Duck Population*	--	--	--	2,210,069	2,315,100	+ 4.0	128,900	168,900	+31.0	5.8	7.3
Coot Population*	--	--	--	305,729	309,200	+ 1.0	24,613	44,300	+83.0	8.0	14.3
Canada Geese Bagged	479,526	378,803	−21.0	59,875	38,996	−34.9	7,937	9,713	+22.4	13.3	24.9
Canada Geese Crippled	95,107	74,088	−22.1	8,471	8,047	− 5.0	1,691	1,463	−13.5	20.0	18.2
Ducks Bagged	12,062,594	7,051,144	−41.6	1,192,478	681,728	−42.8	63,502	45,000	−29.1	5.3	6.6
Ducks Crippled	2,467,347	1,377,718	−44.2	294,948	160,147	−45.7	9,488	9,357	− 1.4	3.2	5.9
Coots Bagged	587,174	167,079	−71.6	61,545	10,525	−82.9	1,088	464	−57.4	1.8	4.2
Coots Crippled	172,249	95,585	−44.5	23,800	5,608	−76.4	409	183	−55.3	1.7	3.3
Total Kill	**15,863,997**	**9,144,417**	**−42.5**	**1,641,117**	**905,051**	**−44.8**	**84,115**	**66,180**	**−21.3**	**5.1**	**7.3**

* Immediately following season

The Road to Better Quail Hunting

by Charles Whitley

Photos by Jack Dermid

The co-ordination of farm and wildlife management on a Lenoir County farm has produced top quail shooting in habitat that was once almost void of quail. Here is a real success story.

"PLENTY of food, plenty of cover, ample water, and controlled hunting to prevent overshooting will provide any landowner with a good supply of quail—and good hunting," says F. R. Hodges of Mount Olive. "It is as simple as that. I know."

About ten years ago, when Hodges took over the management of the 1000-acre Hodges' family farm in Lenoir County, he found quail hunting extremely poor despite the fact the land was "birdy-looking." There were about 400 acres of fertile croplands interspersed among 600 acres of swamp and woodlands. It just didn't seem right that birds were scarce, and Hodges was determined to find out why. Considering the possibility that overshooting had taken its toll, he posted the farm for two years.

But posting alone did not seem to make any appreciable difference in the quail population. Two years later birds were still scarce, and Hodges began to consider a restocking program.

Fortunately, he consulted with biologists of the Wildlife Resources Commission before purchasing pen-raised quail. He was told that stocking was not the answer to increasing the quail population. Instead, Hodges was urged to try a long-range program of habitat improvement.

"You provide good living conditions—the food and cover," the biologist said, "and the birds will come."

In 1954, Hodges began planting strips of shrub lespedeza along the edges of fields and in narrow strips in open woodlands. More plantings were made each succeeding year, and more are planned until the farm is fully developed for wildlife. His farm management plan calls for soybean plantings to be made in fields bordering woodlands. A portion

In swampy, dense bottomlands, Hodges has cut access lanes to permit hunting of coveys that would otherwise be overlooked.

Top right: Field borders of shrub lespedeza are the basis of management. Unharvested peas and soybeans provide additional food, while sericea lespedeza provides good cover where needed. Right: F. R. Hodges takes a close look at shrub lespedeza seeds remaining in late winter, the critical period for game.

of the crop is then left unharvested to provide food. Peas are planted between the rows in cornfields, and these too, are left for quail. In marginal areas between cultivated fields and swamps, sericea lespedeza provides good escape cover.

The results have been astounding. At the present time, it is not unusual for Hodges and a companion and their dogs to find from 5 to 10 coveys of quail in a half day's hunt—and this in area where birds were all but non-existent ten years ago. On almost every hunt, Hodges finds a new covey that has never been shot before. It is impossible to determine the exact number of quail using the Hodges farm today, but biologists estimate there are about 30 coveys and call this figure conservative.

When asked if his program for more quail is expensive, Hodges points out that it is not.

"The food and cover plants, such as shrub and sericea lespedeza, are available free of charge from the Wildlife Resources Commission. And they are planted on marginal land. The only cost is for fertilizer and for labor. Crops like soybeans and peas are good for the soil, and the slight cost of leaving some of them unharvested is offset by the benefits to both the soil and to quail."

The success that Hodges has had can be attained by anyone with a sizable farm or by a group leasing hunting rights on private lands. Biologists have been preaching for years that stocking will not provide more quail, but that any permanent increase in the population can be had only through habitat improvement. F. R. Hodges is one fellow who agrees with them—and with good reason.

Shag brings a bird to Jim Wells of Mt. Olive. Simple, inexpensive management pays big dividends in better quail hunting.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Wildlife Federation Meets at Fontana

The N. C. Wildlife Federation met at Fontana Village October 13-15 to conduct annual business and elect officers for the 1960-1961 fiscal year. At one of the most successful meetings in its history the Federation elected: Dr. George Heinitsh, Southern Pines, President; Vice-Presidents: Phil Bracewell, Hickory, Walton McNairy, Greensboro, Norman Perry, Colerain; Chester Arnold, Greensboro, Secretary; and Turner Battle, Rocky Mount, Treasurer. Battle will continue to serve as Executive Secretary. The Rowan County Wildlife Club won the Governor's Trophy for excellence, Chester Davis of the Winston-Salem Journal & Sentinel was voted the outstanding outdoor writer of the year and Walter C. Phipps, Mocksville, was voted the outstanding wildlife protector of the year.

November Sees Peak of Hunting Seasons

The 1960-1961 waterfowl season gets underway November 9 when the season on geese opens, with the duck season coming in November 19. On November 14 deer hunting begins on wildlife management areas with no advance applications needed this year. Thanksgiving Day will see the opening of the season on turkeys, quail, woodcock and rabbits.

Fair Goers Safe Shooters

Most of the 1,100 fair visitors who took the hunter safety test at the Wildlife Resources Commission's booth turned out to be safe shooters—if score-cards tell the tale. Hunters checked their knowledge of safety rules on twenty cartoons showing hunting situations. Of the participants, only seventy-five scored 100%, but the majority scored 90% or higher. The exhibit is part of the Commission's hunter safety training program.

Boat Registration Renewals to be Mailed

Starting November 15 registered boat owners will be mailed their renewal notices for the 1961 boating season. The 1961 registration cards will be returned to owners beginning December 15 on a first-come first-served basis. By November 1 fewer than 38,000 boats had been registered for 1960, a figure far below estimates, and representing an income far below that needed by the Commission to adequately enforce and administer the provisions of the 1959 Boating Safety Act.

The gray squirrel is an agile rodent who makes his home in the trees, lives mainly on vegetable matter, and is as much at ease in a city park as in the deepest hardwood forest. He is first choice as target for one of every four North Carolina hunters.

Text by Don Hankla

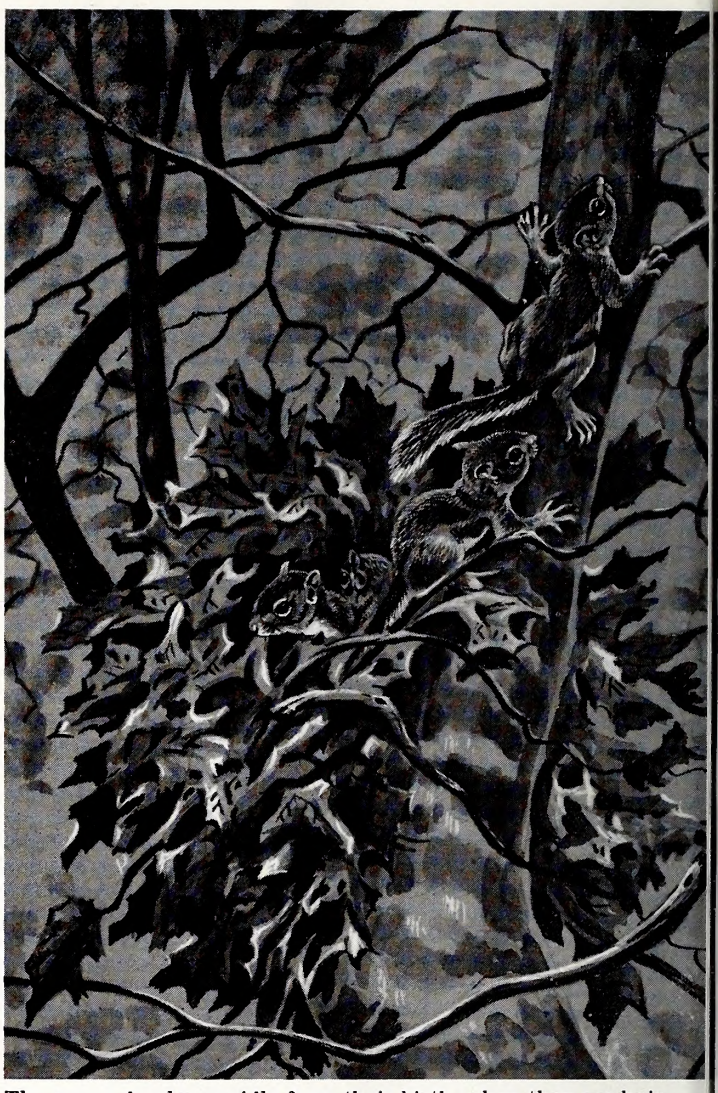
Illustrations by Wallace Hughes

Gray Squirrel through the Year

The art of hunting squirrels requires sharp eyesight, a keen sense of hearing, a well-developed skill in stalking, the patience of Job, and expert marksmanship. Even with these attributes the hunter often comes out second best. Such is the challenge of squirrel hunting that one out of every four Tarheel hunters places him first on his list.

Gray Squirrel Through The Year

Mating occurs during every month, but the peak periods are mid-winter and late spring. The females do not stray far from trees where young are born. Some have two litters a year.



The young develop rapidly from their birth, when they are hairless and weigh half an ounce. Leaving the nest to play at the age of six weeks, at ten to twelve weeks they are on their own.

Predators such as the great-horned owl look upon the squirrel as a prize—but the squirrel has the advantage over most of his enemies because he seldom wanders far from protective trees.

THE gray squirrel is one of the most popular game animals in North Carolina—due not so much to his size or beauty but instead to the sporting qualities of the little gray tree climber.

Every year North Carolina hunters take about 2½ million squirrels, yet the gray squirrel has the ability to reproduce with such abundance that this loss is not felt the following year. There are many other problems faced by the gray squirrel besides the hunter's gun, however, so let's take a closer look at the life history, habits and problems of this important game animal.

Although squirrels mate during nearly every month of the year, breeding is most frequent at two periods—December and January, and May and June. Birth of the young comes about six weeks later, with the gestation period averaging 44 days.

The first peak of birth comes during March and the second during July. The mother is responsible for rearing the young. She begins weaning them at

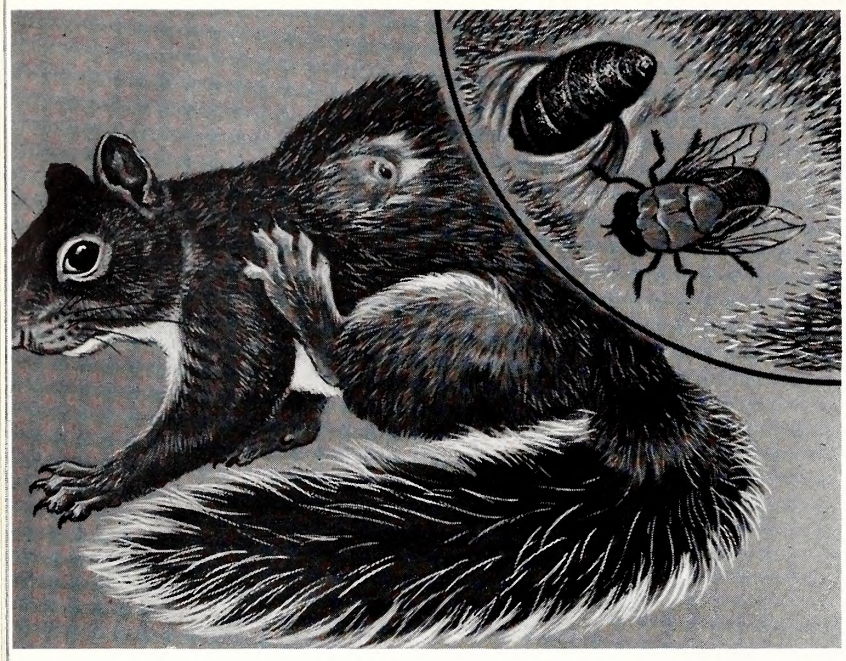
A nesting box can be used to supplement natural den trees, and provides the squirrel with a home safe from most dangers. The squirrel is a home-body, seldom traveling farther than 200 yards from the den tree. In forests where den trees are scarce, the artificial dens will attract and hold squirrel if food and other needs are available. The cost of the boxes is nominal.

seven weeks and the young squirrels leave the nest at ten to twelve weeks. Although the number of young per litter may vary from one to six, the average is about three.

There are several natural enemies that take their toll—including raccoons, foxes, mink, owls, weasels, snakes, wild house cats, and wild dogs. Predation losses are greatest among young squirrels. If a squirrel reaches the age of three months, his chances of living to be a year old increase from about 20 percent to 80 percent.

One important factor influencing squirrel population is food. Diets of gray squirrels vary with the seasons and depend in part on what is convenient. In late summer and autumn they feed on ripening nuts and mast, turning to stored food in winter and early spring. As buds swell in the spring the squirrels begin a new cycle, feeding on winged seeds, flowers, berries, toadstools, insects and, later, corn from nearby farmers' fields.

The squirrel's food is usually vegetable in origin, and when other foods are depleted he will live on buds and twigs. The average squirrel consumes about two pounds of food per week.



The warble, or botfly larva, is a factor in setting open seasons for the gray squirrel. The parasitic insect lays its eggs in the skin of the squirrel, causing an unsightly lump and sore. When seasons open in most parts of the state the larvae have emerged, but some hunters discard squirrels as unfit for food if open sores remain.

SEVERAL parasites use the gray squirrel as host—these include fleas, ticks, mites, lice, chiggers and botflies. Most of these parasites are simply pests—but the botfly is a problem that affects the hunter's harvest.

The larvae of the botfly develop under the skin of the squirrel, causing unsightly lumps. Hunters know these as "wolves" or "warbles." There may be as many as five on one animal.

Reaching the size of a small pecan, the warble usually completes its development within a month and then erupts through the skin. After emerging, the warble falls to the ground to remain over winter in the pupal stage. In the spring an adult botfly results.

Warbles often affect 30 to 40 percent of the squirrel population in some sections. The peak of the infestation comes in August and September, affecting mostly adult animals.

Warbles are most severe in the Piedmont, northern Coastal Plain and southern mountain counties. Although the sore is only skin deep and does not affect the flesh, hunters frequently discard squirrels that contain warbles or unhealed sores caused by their emergence.

Management of the gray squirrel in North Carolina is mainly a matter of regulating the seasons and bag limits so that enough squirrels remain after each hunting season to serve as the breeding stock for the following year, and to insure that all hunters have an equal opportunity to take their share.

Hunting Seasons

When the Wildlife Resources Commission sets the open season for squirrels, two things are considered. A time is chosen when most of the summer's crop of young squirrels have been weaned, and when warble infestations have dropped to the level where most squirrels killed will be considered fit for food.

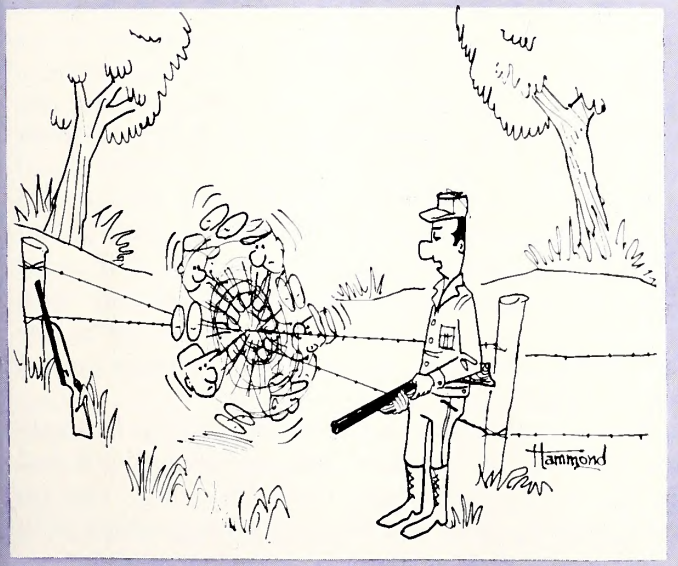
Surveys in North Carolina indicate that these two dates come at about the same time. In the mountains and upper Piedmont, warbles are much less common after October 1—the date when most squirrels born in July and August have been weaned. In the lower and central Coastal Plain counties the date is about October 15. In the central and lower Piedmont counties, warbles decline and young are weaned by about November 1.

These dates are not always completely dependable, since a late autumn can mean warble infestations after the season opens and delays in breeding can mean young squirrels in the nest beyond the normal weaning time. On the average, however, these opening dates have been chosen to best meet needs of both the hunters and the squirrels.

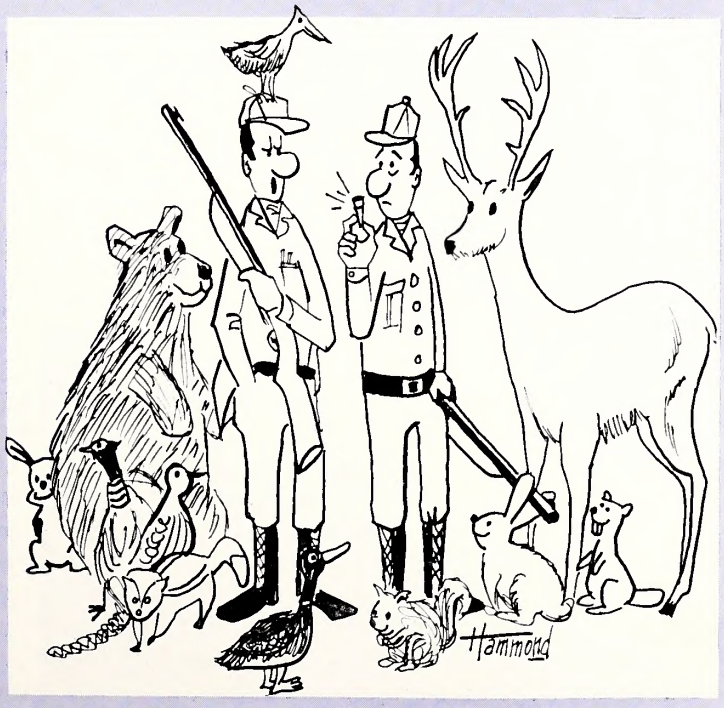
On the Lighter Side

Cartoons by G. T. Hammond

Is this your idea of a hunting paradise that nobody knows about?



I see you haven't learned how to cross a fence yet.



Quite a dog whistle you have here!

WHO WANTS THE Walleye?

The walleye story in North Carolina is an interesting one. It is truly fish management in action and shows what can be done with careful planning and field investigation. The Tarheel fishing scene is richer with the walleye in it and some day a world record fish could come from a western North Carolina reservoir.

By Duane Raver

IF ever a fish was misunderstood, the walleye is it. First off, his name isn't exactly a beautifully-phrased compliment. And to add further insult, the complete misnomer of "pike" was tacked on to "walleye" until a couple of years ago. So the walleye pike was (and still is) pictured as an ugly, savage brute, reaching enormous size and prowling chill waters, eating everything in its path.

Part of this somewhat distorted sketch stemmed from the "pike" part of his handle. The true pikes are the muskellunge, northern pike, chain pickerel, and redfin pickerels. The walleye is really a perch; a very close relative to the harmless yellow or raccoon perch. He does have a milky appearance in his eyes although his sight is impaired not at all. So fact emerges from fancy.

Northern Import

The walleye is native to much of the eastern two-thirds of Canada, and roughly the northeastern one-fourth of the United States. Until recently, the southern-most boundary for the walleye was the lower Tennessee state line. Water-wise, he prefers cold, clean, lakes on rivers with plenty of rock and gravel bars. Vegetation is strictly unnecessary. The walleye eats just about anything that swims (that he can catch!). Spawning takes place in very early spring in running water—if available—or along wind-agitated shores if not. Better populations of walleyes usually develop in lakes where streams enter and up which the egg-laden walleyes travel. But flowing water is not essential to reproduction.

In the northcentral states of Minnesota, Wisconsin, and Michigan, the walleye is practically king. The musky may attract more anglers, but it's the walleye who keeps them there. What's the attraction of this bronze-gray night-roamer? Who wants the walleye anyway?

In fresh water there are two fish that rate a notch above the walleye for flavor in my book: Number One is the channel catfish, Number Two the lake trout. The white, flaky flesh of the walleye is a mighty close third. Its use on the table then is one of his main attractions.

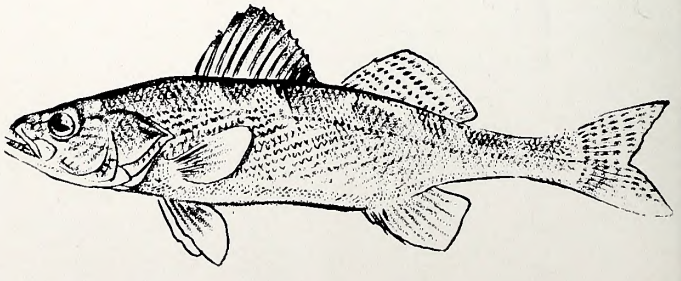
The walleye isn't much of a fighter. But for a good, dogged scrap, count on him for a round or two. No jumping, no sudden smoking runs, but the strike is often pulverizing and the jarring rushes powerful.

Big Eater

The appetite of the walleye is often amazing. As a predator, he is surpassed by only a few in fresh water. With a maximum size of 25 pounds (and more) he consumes small fish by the peck. Gizzard shad (while they're "bite-size") head the menu with young suckers, shiners, bluegills and some young bass rounding out the diet. At times, walleyes go on a regular binge of consuming young catfish. This soon ends as the little scamps sprout larger spines!

The decision to bring the walleye to North Carolina followed a series of lake investigations and studies of the major waters of the state. The introduction of a new or "exotic" species is done with

Built along the lines of its close cousin the yellow perch, the walleye differs in size and by having strong, sharp teeth.



Walleyes hatched from these air-delivered eggs were stocked as fry in suitable mountain reservoirs after careful study.

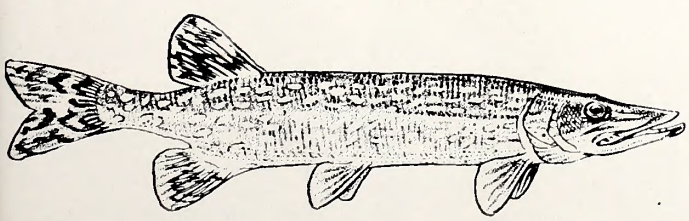
considerable care, since things can be upset by so doing. One of the major problems pointed up by early lake studies was that of an overabundance of forage fish—namely the gizzard shad. A means of reducing this growing army of rough fish was sorely needed. The walleye could be the answer.

Another difficulty encountered was the fluctuating water levels of many reservoirs of the Piedmont and mountains. This up-and-down situation often stranded the eggs of the nest-building bass, and entire year classes of this game fish were lost. The walleye spawns in deep water and the eggs sink slowly to even deeper water where water levels are no problem. Again walleyes looked like an answer.

First Ride By Air

From the first batch of air-delivered walleye eggs that were painstakingly hatched at the Table Rock Fish Hatchery have come fingerlings and adults which have been widely introduced in selected waters of western North Carolina. To put them in waters already furnishing good bass and panfish angling could be risky, so careful selection was necessary. Some plantings of this northern import fizzled. Some thrived to the extent that they threatened other populations. It was difficult to predict ultimate outcomes.

The northern pike, however, looks much like the pickerel. Its basic color is dark green overlaid with bean-shaped light spots.



In some reservoirs that have been stocked with walleyes for as long as seven years, nine-pounders have been caught. Fifteen-pounders may be just a matter of time; twenty-pounders may take a little longer!

Fall finds the walleye emerging from the deep holes of the hot summer. Schools of the blue-eyed perch cruise the bars and rock piles in search of food. Still most active in the dead of night, they can be taken during the day. Early morning finds them drifting away from the shallows to their daytime rendezvous. Casting a deep-running, slow-moving plug toward the shoreline and retrieving it among the boulders should bring response from the walleye. Mid-morning trolling at depths of 15 to 25 feet may pay off. Once you've hooked a walleye, work the area thoroughly. Still-fishing with minnows five to eight inches long, hooked lightly through the lips will often inspire the walleye to latch on.

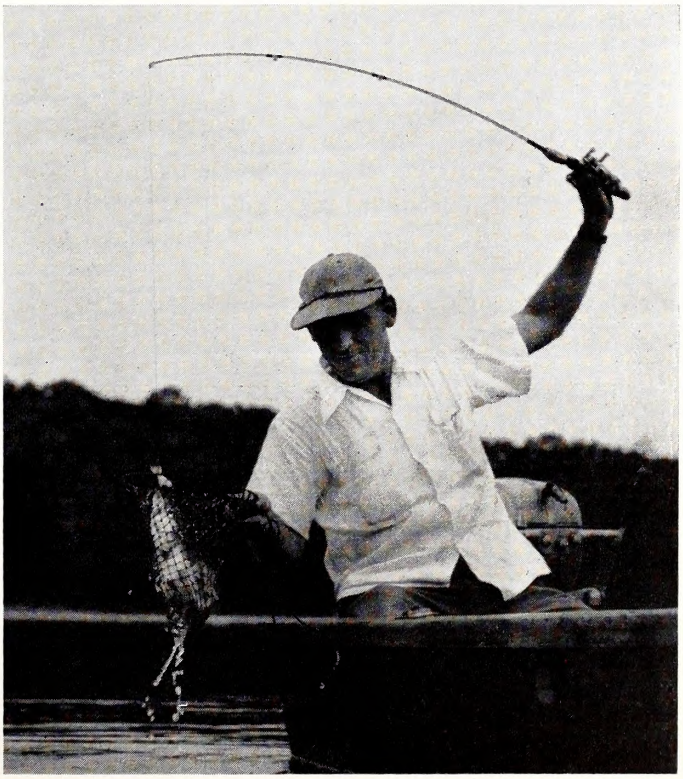
Night's the Time

Late evening and on into the night is the big time, though. Troll a spinner and minnow slowly at a five-foot depth. After you've pinned them down, cast for them. Even the fly rod isn't out of place here and big streamers may prove the best lure of all. A bucktail jig is an excellent all-around lure for walleyes whatever the occasion.

Cuss him or praise him, old glass-eye has found a permanent home in Tarheel waters.

A landing net is almost a necessity in bringing the walleye aboard. Watch out for the sharp teeth and gill covers when handling him. Fertile Lake James yields another nice fish.

Photo by Jack Dermid



The Skipper

Conducted by Duane Raver

Boating Safety Laws

ALTHOUGH the boating season is not over, and a real analysis of the past year has not been begun, this is a time of reflection. The success of the Boating Safety Act of 1959 won't be measured by the number of boats registered, nor by the number of violators arrested. The real success of this legislation will be in terms of lives saved and accidents prevented. To measure these elements is difficult and may be almost impossible. Previous records are sketchy at best; comparisons are hard to come by. National statistics, from one viewpoint, are encouraging in that as boating grows in popularity and volume it becomes safer. As the number of motorboats in use continues to multiply annually, the total number of boating fatalities has risen only slightly. One needless boating death is too many, however. What's the answer to accident-free boating? Is it boating safety laws?

Look at only two examples of last summer's accidents: A boat towing a water skier reached optimum skiing speed and skimmed along, paralleling the shore of a foothills reservoir.

In the boat were the driver *and* an observer. *Both* were looking *back* at the skier; the boat sped along at moderate speed and suddenly bore down on a group of youngsters paddling near an inflated innertube. Veering slightly at the last instant, the motor's propeller sliced evenly-spaced gashes into a teenage girl, severing one arm and killing her instantly. Somehow the others in the group escaped with shock and one nicked finger.

Three fishermen, two wearing life jackets and the third seated on a buoyant cushion, began a day of angling on a large Piedmont reservoir. Soon the men stopped to talk with some relatives on the bank. After a short chat, one of the men—the one not wearing a life jacket—stood up and jerked the starter rope. The motor started suddenly with a burst of speed and the boat capsized. Although neither of the two men wearing life jackets could swim, they managed to reach shore. The third man, knowing that he was not a good swimmer, still struck out for shore some 60 feet away. He drowned in 15 feet of water 30 feet from shore. The boat did not sink; it could have supported six people.

Could any law have prevented these fatalities? You say certainly "careless and negligent operation" was the cause in at least the first of these tragedies. Perhaps, but the fact remains that "you can't legislate common sense and altertness into the human mind."

Boating safety laws are necessary and must be obeyed. But the final answer is the boater himself.

Boating Fun

Your day of fun on the water begins with the launching of your boat. If you follow these hints from the "Seamanship Course" of the Outboard Boating Club of America, you can launch your craft easily, quickly and safely in just a few minutes.

First, choose a good spot. If you're launching from an unimproved site, pick a sloping shore that is hard enough to give your tires traction. If the shoreline is muddy or sandy, better traction can be gained by letting some of the air out of your tires. Don't forget to restore this air before you begin your trip back home. In backing toward the water, remember, if you want the trailer to go to the left, turn the wheel to the right.

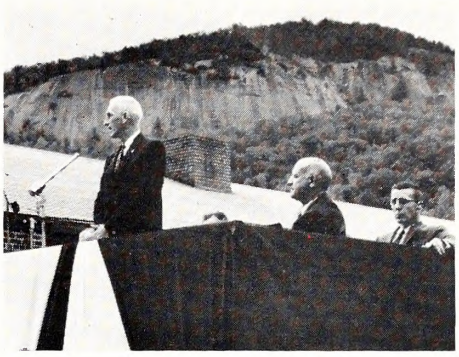
Second, have someone watch the rear of the trailer and call out instructions as you back toward the water. Now follow the four launching steps basic to all boat trailers:

1. Remove the rear tie-downs when a few feet from the water.
2. Tilt the motor up and unlock the bow winch, but keep the boat snubbed tight.
3. Back up until the trailer wheels are in the water an inch or two, set your hand brake and put the car in gear. Give the boat a firm push down the trailer.
4. Unfasten the launching line or cable and reel it in, but be sure to keep the boat from drifting by holding a line attached to the bow. Pull the empty trailer up to a sheltered spot and park your car.

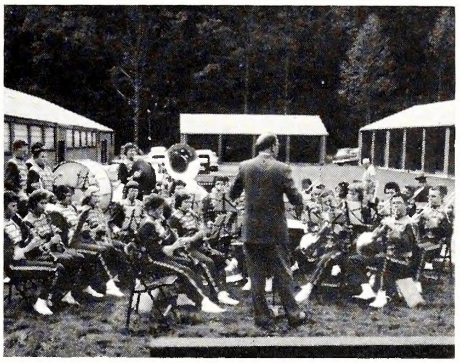
Now you're ready for an enjoyable day.

A safe day afloat starts with proper boat loading. The boat is tied and held steady as each passenger boards carefully.

Shown above is part of the crowd attending the dedication ceremonies of the new Pisgah Forest National Fish Hatchery on Davidson River in Transylvania County.



Transylvania County Attorney Ralph H. Ramsey gave the welcome at the event.



The Brevard High School Band furnished the music for the hatchery dedication.

Pisgah Forest National Fish Hatchery Dedicated

Photo Short by Rod Amundson

A WELCOME addition to North Carolina's trout production facilities was dedicated in September for sportsmen of this state and to trout fishermen throughout the southeastern section. The Pisgah Forest National Fish Hatchery—having produced its first crop of trout this year—was formally dedicated at its beautiful setting at the foot of John's Rock in Transylvania County.

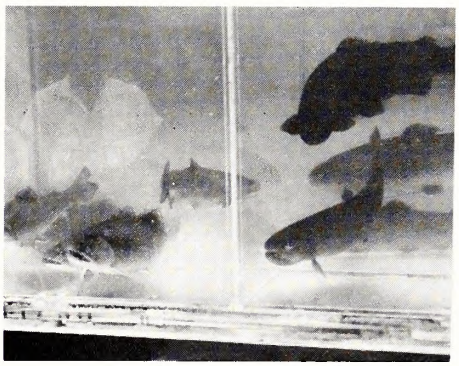
The hatchery was built by the U. S. Fish and Wildlife Service to supply mountain trout for streams on Federal lands in the South.

Dedication services were sponsored by the Buncombe County Wildlife Club. A chilly rain which reduced attendance at the event did not dampen the spirits of some 200 people who visited the hatchery.

Featured speakers were Ross E. Leffler, Assistant Secretary of the Department of the Interior; former Congressman George Shuford, who was instrumental in getting a legislative appropriation for the hatchery; Congressman Roy A. Taylor, who succeeds Shuford; Wildlife Commissioner T. N. Massie of District 9, representing Governor Hodges; Hugh Redding, U. S. Forest Service; Clyde Patton, Wildlife Resources Commission; Tom Kimball, Director of the National Wildlife Federation; and Turner Battle, N. C. Wildlife Federation.

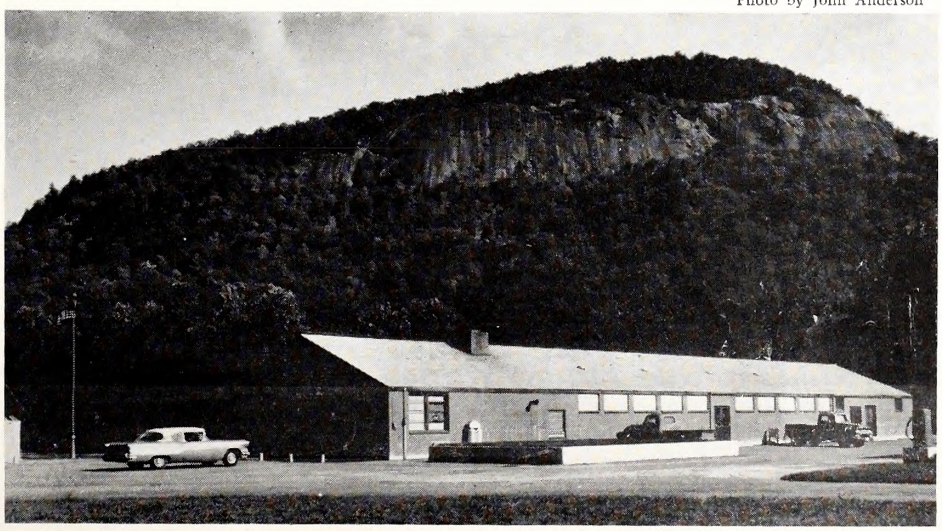
The new hatchery is expected to double North Carolina's trout production for the increasing number of trout fishermen.

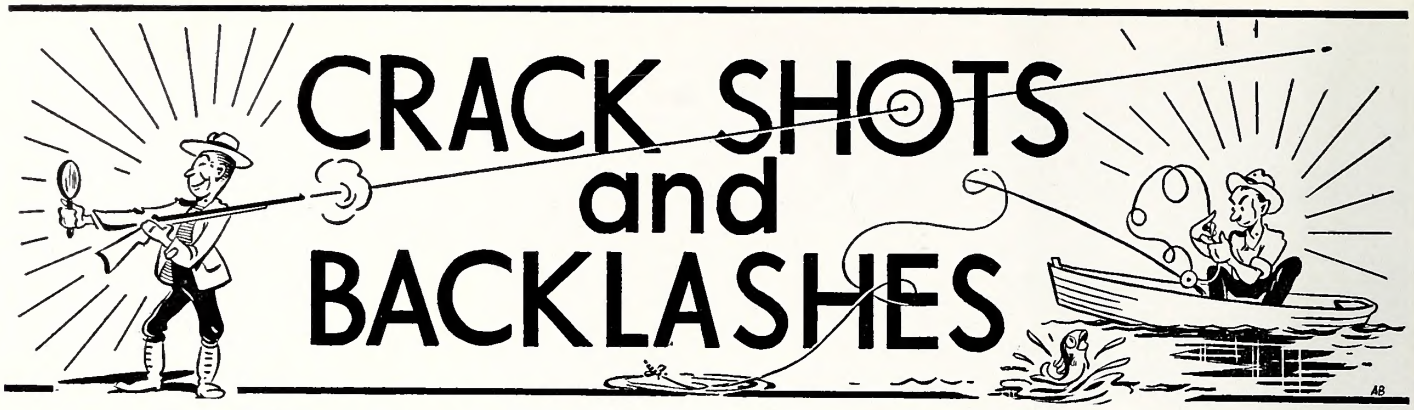
Mountain trout in display tanks received longing looks from the hatchery visitors.



The latest in buildings and equipment make this one of the finest of hatcheries.

Photo by John Anderson





DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

You can never tell what the next mail will bring. Last summer "The Raleigh Roundup," a weekly column written by Kidd Brewer, Raleigh, contained an item describing *Wildlife* as the best bargain in the state at $1.00 per year. Brewer's column appeared in the August 26 edition of *The Tryon Daily Bulletin*. Harry R. Stuedell, Lakewood Ohio, subscribes to this fine newspaper, saw the item, sent his check for $1.00 to same, with the request that it be forwarded to the proper address.

We informed Mr. Stuedell that our rate is only fifty cents per year, and that he will receive *Wildlife* for two years.

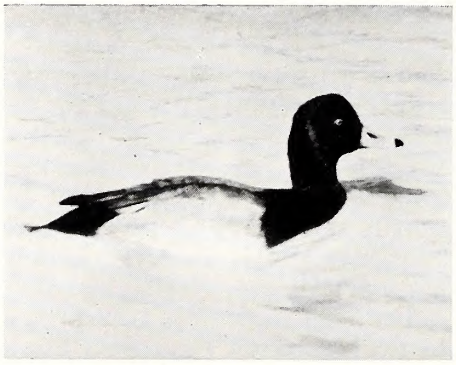
A Wing and a Prayer?

The following communication was received from the Wing Collection Committee of the Atlantic Flyway Council:

This fall, if you are a duck hunter, you may be asked to send in a wing from each of the birds you take, to the Fish and Wildlife Service. You may wonder about such a strange request, so this may help to explain the whys and wherefores of it.

First of all, the birds themselves are the only ones that can "tell" us the real story about themselves. But in order to get this story, thousands of ducks must be examined by trained biologists. In the past, even with widespread bag checks all over the flway, only a few species were handled in numbers large enough to be meaningful. And, these studies were very expensive. Now, a technique has been worked out by Service biologists, so that a large sample of wings of any species will tell us many things.

What do we look for on the wings? Well, many waterfowl biologists do not know at this time, but they will when the training session ends this winter at the Patuxent Wildlife Research Center of the Fish and Wildlife Service. Very briefly we will be looking for evidences of the age and sex of each bird, which are indicated by such things as frayed "shoulder" feathers, length of speculum border, color or edging of certain wing coverts, and so on. For each species of duck, the techniques used and feather patterns looked for are somewhat different; this is the reason for the training session at Patuxent, where the instructors will be the Service biologists who laboriously worked out the techniques which make this study possible.



It pays to know your waterfowl! This season, Federal hunting regulations prohibit shooting redheads (shown) and canvasbacks to give the two species a chance to recover from low nesting success setbacks.

What can we find out from this? By recording the percentage of birds-of-the-year in the hunting kill each season, we can indicate changes in the productivity of the various species from year to year. This knowledge, tied in with the northern production surveys, can help interpret the effects of factors affecting success on the breeding grounds. We can also check on the species composition of the kill as it is otherwise reported. In conjunction with banding programs, it would also make possible a type of total population estimate never before possible because of the unknown fraction of the season's kill that was immature. This population estimate would be an extremely valuable check for us in the Atlantic Flyway in particular, since with non-operational breeding ground surveys in eastern Canada we must depend on our mid-winter "inventory." Hunting season success could also be compared from year to year.

Well, this gives an idea of the use to which some of this wing collection data might be put, so if you are a duck hunter and you are asked to send in wings this fall, please cooperate. You will be helping yourself as well as the ducks.

Here's A New Idea!

These continue to be austere days of generally low fishing license fees despite sharply rising costs and rapidly growing needs for expanded conservation programs. It is therefore encouraging to find that some sportsmen voluntarily recognize and implement their responsibilities in various ways to help perpetuate the resources they exploit for recreation.

One especially commendable ex-

The Stanly County Wildlife Club's annual water festival in late August produced a new queen—former queen Ann Bell crowns Frankie Hatley, 1960 winner of the title.

ample of this is to be observed annually in Wisconsin. For many years that state has offered what it calls a voluntary sportsman's combination fishing, hunting and trapping license. It costs $10.00 per year or more as desired. Wisconsin citizens are not required to buy it but it is hoped that they will.

If they don't purchase that extra-fee license, they must purchase the required license in any case for the particular phase of interest involved. In the case of fishing for example, the required resident license costs $2.00. In other words, you can volunteer to pay $10.00 or more instead of the required $2.00 and by this means do more to help assure good fishing.

And how many do they sell? Interestingly enough, they have sold over 50,000 such licenses a year for the past several years. The actual number sold last year was 53,429! We regard this as most encouraging because this is the level of investment in resource management that all anglers should actually be making in order to finance conservation programs adequate to create and maintain good fishing at a high level of yield in response to current demands. (From the *Sports Fishing Institute Bulletin.*)

Old Crow At Work?

DEAR SIRS: You express surprise at the quantity of pecans sacrificed to crows and jays by Mrs. Littlefield. So here is one for you to really scoff at. We moved to a well-watered virgin area—a tributary to the Wahita River where there were large native pecan groves; a half-mile from where we stopped was a 100-acre heavily fruited grove adjacent to a three-fourth section of yard high grass, and during the open season several hundred crows carried pecans daily and hid them in the tall grass. In late November fire burned the grass and "believe it or not" one could not walk over the burned area without walking on parched pecans. I estimated there were between 1000 and 1500 bushels of parched pecans that was a bonanza, a utopia, a haven for Indians, black and white boys till it rained many weeks later.

The interesting eagle print in the snow, Page 21, August Wildlife recalls my own interesting observation of a rat and screech owl. After a fresh snow I was on a creek that was near my barn, and found an imprint of stubby wings in the snow. Looking for a motive, I discovered rat tracks that disappeared at the imprint. Seeking near by for further evidence, I found half (the hind half) of a rat underneath a low horizontal branch of a nearby tree.

For ratters, a pair of nesting screech owls near a barn or grain bin are worth six cats—and in my barn they became almost as fearless as house cats; and would threaten me by snapping beak and fierce scoldings; and you know, I love the rascals. DAVID J. EDWARDS, CALVIN, OKLAHOMA

No scoffing—just amazement. —Ed.

Hunting Safety Tips

Proper gun handling is the key to safe hunting. The position of the gun and pointing are essential to safety.

The three basic rules of safety will eliminate most hunting accidents. Treat every gun as if it were loaded—make certain it is not loaded. *Always* point the muzzle in a safe direction—loaded or unloaded. Be sure of your target and background—a good hunter will miss an opportunity to shoot game if he isn't sure of the target and background, and will never shoot at "patches" of color, sound or movement until game has been identified. Remember to play it safe—it is too late to be careful after an accident.

A claim to the title of best fresh-water fisherman in North Carolina and a trip to the national contest was the prize in a fishing contest on Lake Hickory in October. Runner-up Paul Sipe of Lenoir and Wildlife Commission director Clyde Patton (center) congratulate Ed Saunders of Lenoir (right) whose 3-pound bass won.

PROTECTOR OF THE MONTH

Raymond Y. Allen

Raymond Y. Allen, Caswell County Wildlife Protector, was born in Person County on March 4, 1915. He attended the Person County public schools, and graduated from Hurdle Mills High School in 1933. He was formerly employed by Collins and Aikman Corporation in Roxboro, Wright Automatic Machine Company in Durham, and the State Highway Commission, prior to employment with the North Carolina Wildlife Resources Commission in 1948.

Mr. Allen is married to the former Josephine Wade of Leasburg, and they have two sons, Ray and Jimmy. The Allens are members of the Leasburg Methodist Church.

ENFORCEMENT RECORD FOR AUGUST

HUNTING & FISHING:	
Persons checked	18,184
Total prosecutions	397
Total convictions	388
Total cases not guilty	2
Total cases nol prossed	6
Total cases dismissed	1
Total fines collected	$1,289.25
Total costs collected	$2,945.35
BOATING:	
Boats checked	6,149
Total prosecutions	209
Total convictions	204
Total cases not guilty	2
Total cases nol prossed	3
Total fines collected	$ 927.00
Total costs collected	$1,613.55

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

Haven for Snakes

DEAR SIRS: We have a cottage on Pamlico River and are thinking of building a bulkhead out of rocks and concrete blocks. We have heard that snakes gather around and raise where there are a lot of rocks.

We would like to know if there is any way to either run the snakes away or poison them? As it is, we have right many snakes and we hesitate in building the bulkhead until we find out if there is any practical way of controlling these pests.

We would appreciate it a lot if you could send us any literature you have or any other information on this subject. O. B. BASS, DURHAM, N. C.

Mr. Harry Davis of the State Museum recommends filling holes between rocks in the bulkhead. This would prevent snakes from getting into the crevices. Poison is not recommended. It would wash away from wave action or rainfall, and could damage or destroy desirable wildlife species.

He Knows Where the Wild Goose Goes

DEAR SIRS: I have just read with much interest the letter of a Mr. Goodman Fulford, who seems to think the geese on Lake Mattamuskeet would start flying at 4:30 p.m., if the law was to stop shooting at 5:00 o'clock. He says they do not start to fly till 4:30 p.m. Mr. Fulford should go to Fairfield some Sunday afternoon, and he will find geese flying all times of the day, in all places. Some places he may have to slow up his car to keep from running over them.

He will find this condition any day on the road across the lake or any restricted location. I claim if the law said stop shooting at 3:20 p.m., they would be flying all over you by 3:30. Moving the time 30 minutes may get a few the first few days, but then they would learn and know when to fly, and just have shorter time to feed.

If I were in Hyde County some beautiful day and saw the geese going from the sound and bays I would bet on rough weather and high tide. If they were going from the lake to the sound I would bet on good weather and low tide. The goose knows. When some one says you are crazy as a damn goose, don't get mad, that's a compliment.

I have written the above on the "A Legitimate Gripe?" written with a question; this is my view from experience. HAROLD C. BAINN, CRESWELL, N. C.

Correction (backlash): We misinformed Mr. Goodman Fulford when we said that the 1957 Legislature set the shooting hours at Mattamuskeet to close at 4:20 p.m. Representative Roger C. Kiser, Laurinburg, set us straight on the matter. It was the 1955 Legislature, and the prescribed closing hour is 4:00 p.m. Shooting stops at 4:20 p.m. on Currituck Sound.

Raccoon for a Pet

DEAR SIRS: I have wanted a raccoon for a very, very, long time. My brother is a Boy Scout and we would take excellent care of it.

Would you please tell me how to get, or help me get a raccoon for a pet. Please help me. Mother and Daddy approve because we have proven to them that they are very clean and friendly if you get them young.

We have studied and know a lot about them, and promise to take care of it. Thank you for your patience. TONI THOMPSON, STATESVILLE

Pet coons are available from a number of pet dealers. If the dealer is nonresident you will need a permit, at no cost, from the Wildlife Commission to import a game animal, and a permit (again no cost) from your local wildlife protector to keep game in captivity.

Hunting Safety Tips

Many shooters own both 12- and 20-gauge shotguns. More than any other combination, this is the most dangerous. An old hunting coat can soon carry some shells of both sizes in one pocket. The 20-gauge shell will drop down a 12-gauge barrel and stop, out of sight, just ahead of the chamber. When the shooter puts a 12-gauge shell just behind and fires, he often becomes a statistic. The 20-gauge shell acts as a plug, causing the barrel to burst, often with tragic results.

Backlash From a Dove Hunter

DEAR SIRS: Will you please enlighten me as to what constitutes a baited field or other baited places for the purpose of taking or attempting to take any wild birds or animals?

After reading your article on "New Deal for Dove Hunting" in the August 1960 Wildlife I am at a complete loss on the subject.

If this method you are using to lure doves over, and to these mourning dove management areas is not baited fields, what would you call it? Here is part of a paragraph pertaining to your article in Wildlife: "Landowners agreed to permit the Commission to restrict hunting to designated days and to permit the Commission to plant 10 acres of browntop millet for dove food." If this is not baiting, what

Duck populations are low again this year, and waterfowl hunters should make every effort to prevent waste of birds through crippling. Using proper shot loads, shooting at only those ducks within range, and taking along a good retriever will help.

is it? You are using this millet to lure the doves to those chosen areas for the purpose of shooting or shooting at them. This millet is not being planted for normal growing and harvesting purposes. Please tell me what would be the difference between what you are doing, or for me or someone else to take a sack of some make of feed that would attract doves and place it in some selected field for dove food, and sit back and wait for Mr. Dove? That is what you are doing. We have millet fields in our section, and before we can hunt these fields the millet is cut, harvested and the fields disked under; if not it is considered a baited field.

I wonder just how many hunters like myself that would be able to get the landowners' permission to hunt on these so-called public dove hunting areas. After the landowner gives his friends, politicians, and public office holders permission to hunt, there will not be much room left for any one else.

I would suggest that you leave the dove hunting as it is; for sure you are not going to help the hunting for a small number of people, and you know who they are. After you set up these feed drops there will not be a dove left for miles around.

Why have your so called public dove hunt on every Wednesday and Saturday? All of the hunters can't hunt on these days. Why not mix the days, say first week Wednesday and Saturday; second week Monday and Thursday; third week Tuesday and Friday? DOUG DUKE, NORLINA, N. C.

Following is the official interpretation of baiting as published by the U. S. Fish and Wildlife Service:

IT IS LEGAL TO HUNT MIGRATORY GAME BIRDS

1. Over grain fields seeded in a normal agricultural manner.
2. Over standing crops.
3. Over flooded standing crops of grain or other feed, including aquatics.
4. Over grain crops properly shocked on the field where grown.
5. Over standing grain or other feed crops grazed by livestock, example—hogged down corn fields.
6. Over grain found scattered solely as the result of a normal agricultural harvest.
7. Over weed fields, pasture lands, wooded or other areas where salt, grain or other feed has not been scattered or deposited so as to constitute a lure or attraction for such birds.
8. Over fields where grains or other crops have fallen to the ground from natural causes.
9. Over burned areas from which crops have been removed, or on which no agricultural grain or seed crops were grown during the current year.
10. Over farm ponds or other water areas which have not been baited.

IT IS ILLEGAL TO HUNT MIGRATORY GAME BIRDS

1. Over bait—or by means, aid and use of bait—or on or over any area where grain, salt or other feed capable of luring or attracting such birds is placed, deposited, distributed or scattered except as the result of a normal agricultural planting or harvest.
2. Over feed lots—where grain is present as a result of feeding livestock.
3. Over areas where grain crops have been cut down, dragged down, knocked down, burned over or otherwise manipulated and left on the ground.

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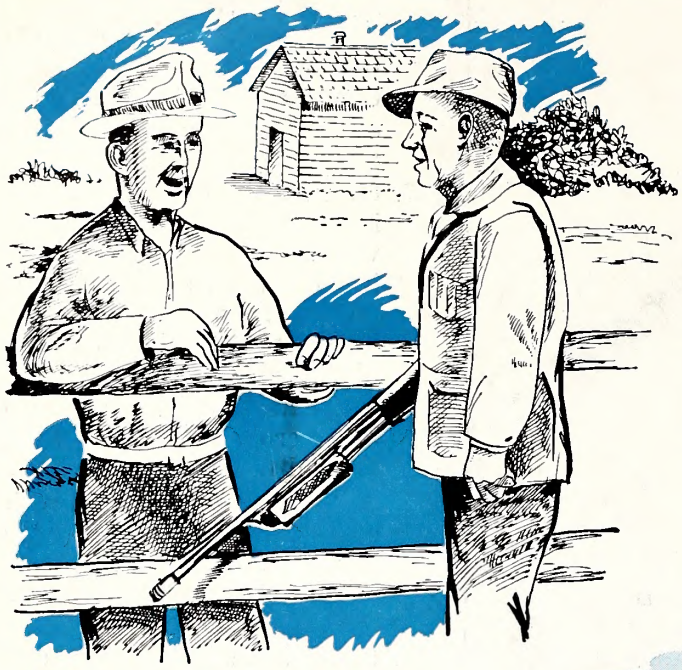
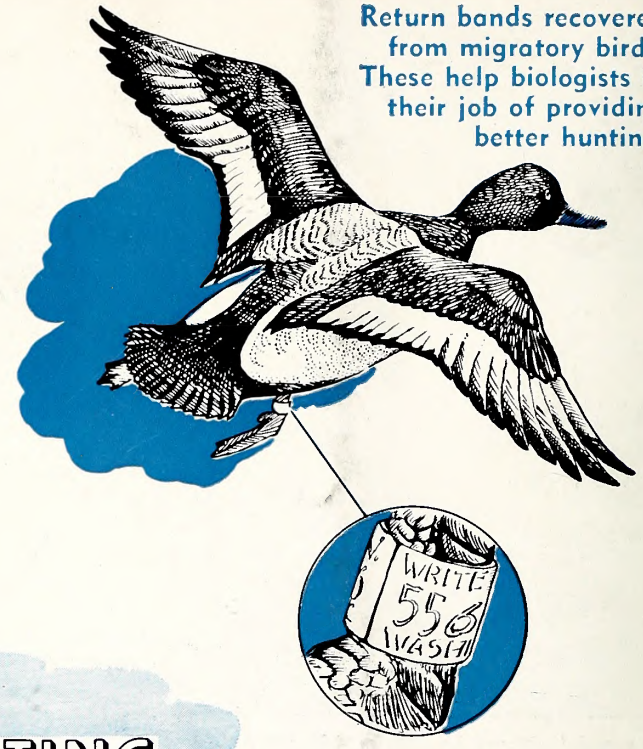
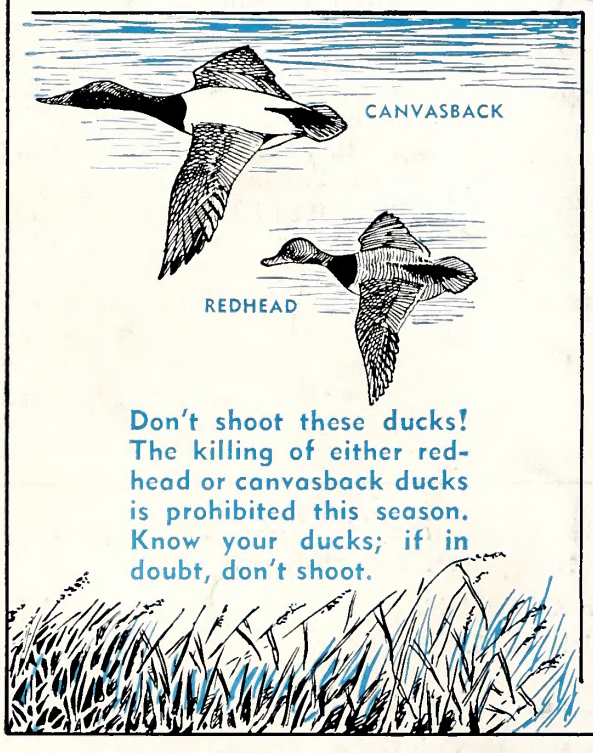


Always ask the farmer's permission to hunt. Your sport may depend on him.

Return bands recovered from migratory birds. These help biologists in their job of providing better hunting.



HUNTING TIPS



Don't shoot these ducks! The killing of either redhead or canvasback ducks is prohibited this season. Know your ducks; if in doubt, don't shoot.

This can kill you! Hunt safely; think; follow safety rules.

HUNTING IS A SPORT; OBEY THE LAW!

PRINTED IN U.S.A. BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

Wildlife in north carolina

ten cents

december 1960

Photo by Jim Lee

Fight for Survival

An exhausted towhee, weakened by his fight for survival in a world suddenly blanketed with a foot-thick cover of snow, stumbles through the towering forest in search of food. Pathetic? Yes, but a tragedy that has been repeoted ever since life begon on this planet. Cost agoinst overwhelming forces of the elements, some species have surrendered and are now extinct—but those that remain have the vigor to survive even though some individuols moy perish. Winter's chollenge removes the sick and weak, leoving the stronger survivors to replenish the population later. Giving weoker songbirds o helping hand during winter is a source of vast sotisfoction, but is it desiroble for wild game species?

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

The migratory woodcock, one of North Carolina's less common game birds, is represented on our December cover in a water-color by Richard Parks. With a length of one foot and wingspread of 20 inches, the woodcock is prized as a target because of his direct flight and tendency to travel in flocks. The season this year opened November 24 and closes on January 2. Hunting can begin half an hour before sunrise, but must end at sunset. The daily bag limit is 4. You can recognize the woodcock by his fluttering flight and the whistling noises that he makes as he darts through the air.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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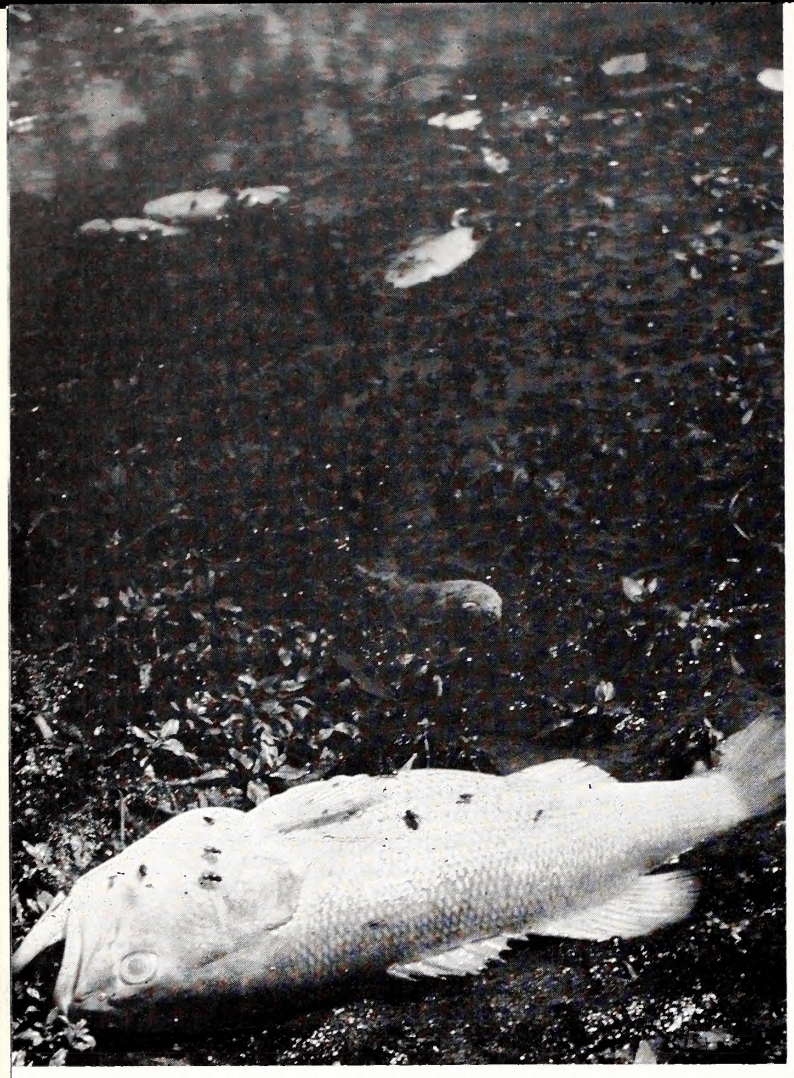
SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.



FISH KILLS - Barometer for POLLUTION

by James R. Harlan

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Reprinted from OUTDOOR AMERICA

Photo by Jim Lee

In North Carolina most major streams already have been classified by the State Stream Sanitation Committee. On those streams where the best use has been determined as suitable for fish habitat, pollution resulting in fish kills is a violation of the law. Wildlife protectors and fishery biologists in the Tarheel State are doing their best to maintain a close watch on these streams, and an immediate report is forwarded to the Stream Sanitation Committee when a fish kill is observed. Obviously, they cannot be all places at all times. You can be of invaluable assistance in this program by notifying your county protector or district fishery biologist immediately should you find dead—or particularly dying fish—in a stream. Remember, time is extremely important —every hour of delay increases the chance that the cause of the kill will go unidentified.

WE owe more to fish than many of us realize. Throughout history fish has been one of our most important basic foods. Wars have been fought over fishing grounds and international fish harvest diplomacy is still with us. Growth and survival of nations have depended on production of food fish and the future may bring even greater dependence on food from water sources.

Every thoughtful fisherman believes we should be taking better care of our fishing water. Everyone else, angler or not, should think so too. For water—good water—without which neither fish nor man can survive, is and must be of increasing concern throughout America.

The U. S. Public Health Service, in cooperation with state fisheries officials and the U. S. Fish and Wildlife Service, has initiated a continuing nationwide tabulation of pollution-caused fish kills. There are thousands of known instances yearly in which significant numbers of fish are killed by sudden severe contamination of their habitat. The Public Health Service proposes to use reports of the kills as an indicator of the trend in biological safety of the waters. The program will establish an additional dimension in basic water pollution data as authorized under the Federal Water Pollution Control Act.

Surgeon General Leroy E. Burney of the Public Health Service points out that responsibility for fisheries management rests with state fisheries authorities who are in intimate daily contact with the aquatic resources under their jurisdiction. The success of the project and value of data will depend on the state agencies asked to supply reports of the kills as they occur.

Sewage and fantastically complex and lethal chemical wastes are poisoning surface waters on which both man and fish depend.

Cyanides, deadly to man, beast and fish, reach

our waterways with disturbing frequency and effect.

Industrial and mine acids in which no life can survive contaminate thousands of miles of streams.

Upwards of 570 million pounds of synthetic organic pesticides and one billion pounds of inorganics (arsenicals, copper and zinc, sulfate, etc.) are manufactured in the nation and distributed each year. Many tons reach water supplies through leaching or direct application.

Household detergents, unknown in the 1920's when conservation groups such as the Izaac Walton League began an unheralded clean water fight, run down millions of drains and begin their persistent life in surface and underground water supplies.

One toxic synthetic organic contaminant, nitrochlorobenzene, has been traced in Mississippi River waters a thousand miles from its origin.

Radioactive wastes are the cause of increasing concern.

In short, into our fishing waters and *our drinking water* are dumped poisonous wastes of commerce and society in ever increasing quantity and variety.

Are we at the dawn of a new debt to the fishes? I think so.

Piscatorial Martyrdom

Fish cannot always survive these poisons and in vast numbers they "turn up their fins" and die. This piscatorial martyrdom may prove to be "Old Lunker's" greatest service to mankind.

With spectacular and photogenic results he is telling us dramatically and unmistakably that we must take a much closer look at the quality of our water supplies. He is acting the role of the miner's canary, giving warning of unseen poisons that may be deadly to man.

It is believed that many fish kills occur each year that are not reported to state authorities. It is here that anglers and others can assist by calling to the attention of local officials fish kills observed so that early investigation can determine the cause and so that corrective action may be taken to prevent reoccurrence.

Pennsylvania's Example

In Pennsylvania, where a superb state reporting system has been in operation for some time, 81 separate fish kills were reported for the year ending in September, 1959. Dr. C. L. Wilbar, Jr., State Health Secretary, has said: "By promptly reporting dead fish and other evidences of pollution, fishermen are making it possible for fish wardens and our engineers to get on the scene and trace pollution sources faster. Fishermen are to be complimented for their prompt reporting of fish kills."

The Pennsylvania Fish Commission, in enlisting the aid of volunteers, appealed to "anyone observing dead or dying fish to report immediately to the district fish warden. Too often hours and sometimes days pass before the warden is notified. The more time that elapses between the actual kill and the presence of the warden on the scene, the less are our chances of pinpointing the cause and the source."

The Citizen's Role

In every state significant pollution-caused kills of fish are now reported to the state fisheries agency. Fishermen or other citizens who discover such kills report them to the wardens or other field agents who relay the reports to the home office. In some states, considerable detail is included on all kills. In others, reports are general and detailed information reaches the central office only when someone is prosecuted. This, of course, means that there is a great deal of variation in the amount of information available in the several state agency offices.

It is not the Public Health Service's intention to ask procedural changes. The service seeks merely to secure from the states and compile on a national basis pertinent facts about all known pollution-caused fish kills.

Reporting the Facts

Simple report forms have been provided to all cooperating state agencies. Included in the information sheet are: date of kill, location, type of water, source of pollution, kind of fish killed, estimated number, severity, extent, duration of critical effect, significant changes in aquatic food organisms, corrective action needed, and comments. Information received will be punched on cards for machine tabulation as is now being done with reports of rabies and tularemia.

In its exploration of the need for the collection of fish kill statistics the Public Health Service has worked closely with the Fish and Wildlife Service and will provide that agency with a copy of each report as it is received. It is believed that the statistics will be valuable from a fish and game management standpoint as well as in water pollution control.

Two regular publications are planned. One will be a quarterly summary of fish kills; the second will be an annual report containing detailed statistics. It is expected that the annual report will reflect fish kills by drainage basin and seasons of occurrence as well as by state and for the country as a whole. Both the quarterly and annual reports will be distributed to all cooperating agencies, organizations and to individuals requesting them.

As a sportsman and an American dedicated to the protection and restoration of soil, water, woods and wildlife, you can make this program your program. Report all fish kills as they occur to your local fisheries authority.

Along the wild shores of Charlton Island, flightless, young Canada geese were driven into traps made of nylon fish netting.

Banding Reveals

WILD GOOSE TRAVELS

by F. Eugene Hester
Zoology Department
North Carolina State College

MIGRATING geese have caused many a man to lie awake at night, listening to their lonesome honking as they passed overhead on their annual trip southward for the winter. Their migration has fascinated mankind for thousands of years and been the subject of wide speculation. Where do they come from and where do they go?

Early information about waterfowl migration was of a vague and general nature, but later the attachment of small, numbered aluminum bands to the birds' legs has provided identification of individual birds and helped unravel the great mystery.

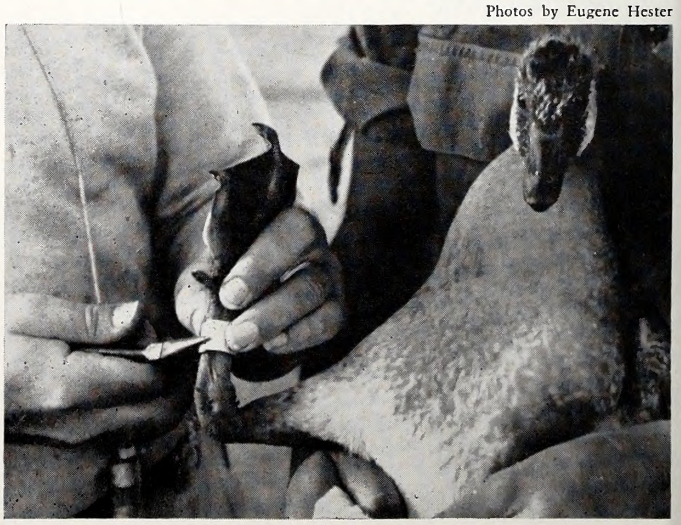
By banding birds on their nesting areas and later recovering the bands from birds on the wintering grounds it is possible to correlate certain breeding grounds with specific wintering areas. In addition to satisfying human curiosity about migrations, this information is useful in adjusting hunting regulations. When the breeding success in Canada is known, the availability of birds on the wintering areas in the United States can be predicted months before the migration.

Studies of migrating waterfowl require the cooperative efforts of many people in different areas. In 1955 North Carolina State College joined the North Carolina Wildlife Resources Commission and sent me as their representative to a Canadian nesting area to work with a banding team under the auspices of the Atlantic Waterfowl Council.

Banding teams went to isolated spots throughout Canada and Alaska. Our group stayed about 500 miles north of the Great Lakes in James Bay, an area sparsely populated by Cree Indians and rarely inhabited by a white man. This area is still a wilderness, and special explorer permits are required for

The band being placed on this young goose marks it as an individual with a number; future recovery will reveal its travels.

Photos by Eugene Hester



entry by people not native to the area, although it is only 500 miles from the United States.

Charlton Island in lower James Bay was our destination for the goose-banding phase of the operation. This 50-square-mile island has a total of four buildings, all of which are abandoned. A single family of Cree Indians lives there during the winter, but during the summer the whole island is uninhabited. It is a beautiful, quiet, and restful place with silence interrupted by the calls of wild ducks and geese. An occasional weird and mournful call of a loon echoes and re-echoes across the clear lakes and spruce trees.

In this remote area the Canada goose finds a favorable nesting place, and by July the young are half grown, but still unable to fly. This half grown stage is a good time to start banding operations because the birds are still flightless and their legs are large enough to carry a band.

Our trap was a portable V-shaped fence of nylon fish nets supported by aluminum rods stuck into the sand or mud. At the apex of the fence, a round holding pen was provided to hold the geese during banding operations. When their escape into bushes was prevented, it was possible to drive the young geese into the pen. Most of the adults were able to evade the trap, but two adults which were flightless because of their summer moult were captured. A total of 97 young and 2 adult geese were banded.

The movements of these geese have been followed for more than five years. Every time a hunter returns one of the bands, the data and location of the kill is recorded and plotted on a map. To date 24 bands have been returned—an exceptionally high recovery. These recoveries from the wintering birds came almost entirely from Maryland and Virginia. Seventeen of the bands were returned from a small area along the James River below Richmond, Virginia; five others were recovered from birds in eastern Maryland; and a single recovery was made near the south shore of Lake Ontario. In addition, a Cree Indian killed one banded goose in the spring of 1958 when it returned to James Bay for the nesting season.

Thus bit by bit, the unanswered questions concerning migration are being unraveled. An analysis of the accumulated banding and recovery reports through the years provides information on migration routes, the locations and extents of wintering and breeding grounds for various populations, mortality, and longevity—basic information vital for sound waterfowl management.

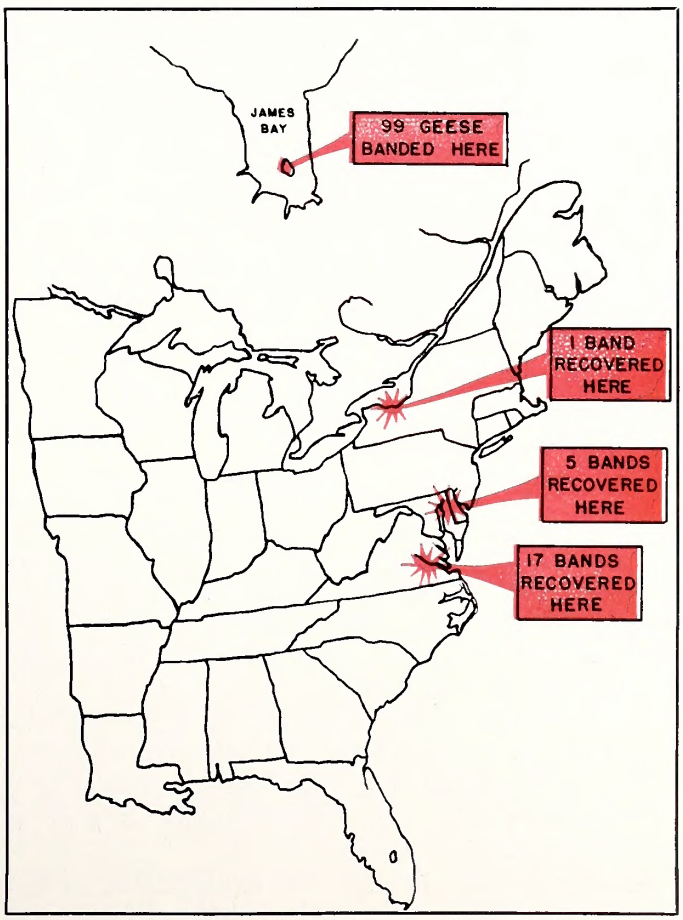
Bird banding in North America is under the general direction of the United States Fish and Wildlife Service, with the cooperation of the Canadian Wildlife Service, and many states take an active part in the program.

The success of the banding program depends upon persons who report recovered bands. If you bag a bird wearing a band, send it to the Bird Banding Office, Fish and Wildlife Service, Laurel, Maryland, giving the date, location, and method of obtaining the band, along with your name and mailing address. In return, you will receive a report on where and when the bird was banded. The band will be returned to you for a souvenir if you request it. In addition a report of recovery is sent to the person who banded the bird.

Bit by bit, banding operations are solving unanswered questions about migration and furnishing facts useful in management.

Photo by Jack Dermid

The bands of 24 of the 99 geese banded in northern Canada have been recovered. This map shows banding and recovery sites.



I Caught My Wife A Fur Coat

By Robert E. Cherico

PRESENTING my wife with a muskrat stole earned through efforts of my hobby has been its most rewarding experience.

The very nature of the hobby, trapping, has made this possible. And it may surprise you, but we live near a large city, not in any lonely or isolated area.

Miles of creeks, rivers and machine-dug drainage ditches crisscross eastern North Carolina, cutting through plowed fields, pastures and woods. Here, among these relatively shallow waterways, I pursue my profitable trapping hobby.

Unfortunately, few persons outside the fur trades realize the importance of the spare-time trapper to the American fur industry. All too often trapping is solely associated with rugged lands of the back country, wild mountainous areas or wintry snowy fields of the north. Of course those are good trapping grounds, but not the only ones.

Few city dwellers realize that the mink, elusive, canny night prowler that he is, more than likely inhabits the fringes of their own city. Animals, like people, prefer lightly wooded, open lands.

However, catching mink is not an every-day occurrence. And many days I have walked several miles checking my traps only to return empty-handed.

Prices obtained vary greatly and are dependent upon the size and condition of the pelts. However, for mink one could expect anywhere from a few dollars for small, poorly colored pelts, to $15.00 for one of larger, finest quality. Raccoon bring from $.50 to $1.50, again depending upon size, quality, coloring and condition of pelt. Muskrat closely follow raccoon bringing from $.25 to $1.40. Rabbit skins bring very little and are hardly worth the part-time trapper's efforts. Those I have caught ended up on the table.

I have confined my trapping to muskrat and mink, for in general the locations selected for setting traps appeal mainly only to those two prolific animals.

To obtain the higher prices requires work, patience and know-how. A certain amount of wildlife knowledge, naturally, is essential. Because of the hard work involved, trapping generally appeals only to true lovers of the outdoors. Besides, it's a seasonal money maker with the trapping months varying among the states.

Love of the game, however, is unending the year 'round. Books offer not only informative, pleasant reading but also an increased knowledge of our native wildlife and their habitats as well as their economic importance.

Detailed studies by map, and explorations on foot of the sections one plans to trap brings him into intimate contact with the outdoors, with its changing, seasonal moods.

Thus summers and falls are spent in preparation for hard, cold wet winter work.

In mild-wintered eastern North Carolina, this calls for hip boots, a good hunting knife and ordinary clothing to suit the weather. I also sling a heavy-duty laundry bag over my shoulder. This is used to carry traps and bring home any animals I may have caught.

Generally, I set my traps along two streams, although I have "run" three areas at a time. Of all my 50-odd traps I have lost only a couple. These, I believe, were taken by boys tramping through the woods. No real trapper would bother traps other than his own, nor would he set his traps along the stretch of stream already "run" by another. In addition, it is always good sportsmanship and a good practice to obtain permission from owners upon whose lands you wish to trap.

In setting out traps you must take into account the animals themselves, their habits, feeding signs, tracks and water conditions. Once a spot has been located along the bank where muskrats have been feeding on roots, grasses and twigs, or a "slide" where they have been entering and leaving the water to feed, set your trap.

The most common method for muskrat is to set the trap, lightly covered with water-soaked leaves or fine mud scooped from the stream, in a few inches of water. Just above the trap, insert a stick into the bank at such an angle that the free end is about six inches above and directly over the trap. As muskrat prefer vegetables, attach a carrot, section of apple or small ear of corn to the stick, so the final effect has the bait suspended over the trap.

Mink, being more cautious and living in dens near the streams where they seek food, prefer something not quite so obvious. By nature they are vicious and blood-thirsty, preying on fish, frogs, mice, squirrels, muskrats, poultry and the like. Therefore, dig a hole about six inches in diameter horizontally into the bank of the stream, extending in and upwards about a foot and a half. Start the hole so there are about two inches of water at the entrance. The water level ought not to extend more than halfway into the hole. Place a piece of fish, rabbit or other meat into the hole where it will remain dry.

A slightly larger trap is used for a mink than for a muskrat. Set the trap at the entrance and lightly cover with leaves and mud.

All traps come with about fifteen inches of chain

for staking purposes. I extend this length by adding a couple feet of strong, flexible wire. Stakes for both muskrat and mink traps are set towards the center of the stream. This allows, in general, easier, and quicker drowning of the caught animal.

Besides mink and muskrats, which are mainly trapped in the water, there are raccoons and opossums. For a good raccoon set, locate their tracks along the stream, pond or marsh, and prepare the set. For bait, use a fish head. Set the trap similar to a muskrat set, with the trap between the bait and shore. The fish head can be on an upright stick in the water.

The raccoon, like most small animals, prefers to travel at night. He eats fruit, berries, fish, poultry, corn, and most anything else.

Official U. S. Marine Corps Photo

Trap opossums at den entrances, which may be burrows, small caves, hollow trees, or beneath farm buildings. Neither possums nor coons are too suspicious and are easily trapped. Use rabbit, poultry or fish as bait, placing in front of a hollow log or tree. Scoop out a bed for the trap and cover lightly.

Naturally, there are many animals to trap, and several time-proven manners to catch them. For each section of the country you must also take into consideration the type of climate—whether it's cold, mild, snowy and so forth.

Traps should be checked daily, preferably early in the morning, soon after light. A rise or lowering of water levels may necessitate removing and changing traps. The streams must be carefully watched to make sure you are neither trapping it out or failing to get your proper catches. This calls for constant checking of signs, or for lack of them. Careful conservation pays dividends in greater future yields.

Skinning calls for patience and skill. In general, begin with the rear feet, using a sharp knife, slitting up the back of the hind legs to the base of the tail. Peel the fur off the animal, using the knife as needed. When finished, the pelt is inside out, ready for insertion onto a stretcher, or fur form. This can be either a handmade or commercial model, and in general outlines the shape of the animal. Here, the pelt is left to dry.

Excess fat is gently scraped off the hide. Never leave flesh attached to the skin. Tanning is left to the commercial houses, never to the trapper. Store the skins in a dark, cool, dry airy location until selling or shipping time. I use our utility room for both skinning and storing.

Selling the pelts is no problem. Buyers are located in most large cities. The mails are used by those living beyond easy driving distance of buyers. Names and addresses of buyers may be readily obtained by writing the chambers of commerce of various cities.

When mailing pelts, use either a ventilated box or wrap the skins in burlap. Many buyers say to avoid using paper alone as it prevents air circulation which could lead to spoilage. Pelts must be laid flat, one on top of another. Never place one pelt inside another. Beyond possibly harming the pelt by allowing contact of skin with fur, it may be overlooked by busy purchasers.

Mrs. Robert Cherico models a muskrat stole made from skins trapped by her husband. In her hands is a tanned pelt. Above her are dried skins ready to be removed from the stretchers.

Most fur houses make scarfs, coats and numerous other items to specifications using the trapper's own pelts. This makes it possible to obtain relatively costly items at a fraction of retail prices.

For my wife's stole I sent off my best pelts, all black, nicely marked. This enabled her stole to remain in its natural color, rather than having the pelts dyed to match—which is generally the practice.

For those desiring to take up part time trapping, much information may be obtained by writing their fish and game departments, visiting local game wardens, hounding libraries and contacting local trappers. They will help you with such matters as probable locations to trap, various sets and types of traps, stretchers for drying, where and how to market your catches, and skinning pointers. For those who follow trapping as a hobby, the returns are as gratifying as the sport itself—and especially to wives who can point with honest pride to their furs and say, "My husband caught these for me."

Photo by Jack Dermid

What is a QUAIL HUNTER?*

by Charley Dickey

Copyright 1958 by Charley Dickey

BETWEEN a boy's first shotgun and a tottering old man we find a delightfully unpredictable creature called a quail hunter. Quail hunters come in assorted sizes, but all of them have the same creed: To enjoy every second of every minute of every hour of every hunting trip—and to violently protest when the sun sinks beneath the horizon and it gets too dark to hunt.

Quail hunters are found nearly everywhere—on steep ridges, bragging in offices, field trials, swamps, sporting goods stores, conservation meetings, Sunday schools, back rooms and at board meetings. Mothers love them, young girls hate them, older brothers and sisters tolerate them, the boss envies them, and Heaven protects them. A quail hunter is Truth with dirt on its face. Beauty with a briar scratch on its finger, Wisdom with Nature as its God, and the Hope of the future with good-will toward man.

When you are busy, a quail hunter is thinking of pointers, setters and country roads. When you want him to make a good impression on a client, he may talk only of the triple he once bagged, the way Ole Spot honors a point, the spring bird hatch or the prospects of his newest pup.

A quail hunter is a composite—he is content with "rat" cheese and crackers for lunch at a country store but his ulcer has to be pampered with a special diet when he's home; he will drink from any old well without question; he has the energy of a hurricane when he starts hunting although in the office it tires him to walk to the pay window; he has the lungs of a dictator when he yells at the dogs although his secretary complains that he whispers all the time; he has the imagination of a scientist as he looks for coveys along each likely edge; he shows the audacity of a steel trap as he tramps through green briars oblivious of the pain in his thighs; he has the enthusiasm of a firecracker as he beats every brush pile, and when the dogs do go on point, he has forgotten to load his gun.

He likes dirty hunting pants, old guns, hunting knives, leaky boots, long weekends, all kinds of field dogs, back roads, wool shirts, abandoned farms and questionable companions who also are quail hunters. He is not much for social gatherings between Thanksgiving and March, stray cats, neckties, educational books, weekend company, barbers, people who post land and clients who don't hunt. Without thought of race, creed or color, he likes people who hunt bobwhite quail three months a year and talk about it twelve.

Nobody else is so early to rise, or so late to supper—during the bird season. Nobody else gets so much fun out of chasing dogs, trampling honeysuckle, and getting mud on his feet. Nobody else suffers so silently with aching feet, twisted ankles and strained muscles. Nobody else can cram into one pocket a rusty knife, 17 No. 8 shells, an extra pack of smokes, a compass that doesn't work, six dog biscuits, change for lunch, a hunting license, waterproof matches, a crow call, a red handkerchief, last year's duck stamp, extra boot laces, a broken dog whistle, a snake-bite kit, and a bottle opener.

A quail hunter is a magical creature—you might get sore at his constant chatter about birds but you can't lock him out of your heart. You can assign him itineraries in the spring, but you know where he'll be in the fall. His sales chart will be as good as the next, but he'll get it there in his own sweet time. He may be the very one who sells the "rich old buzzard" who spends his winters quail hunting in North Carolina.

You might as well give up—the quail hunter is a child of Nature with a hopeless one-track mind. He'll do his work with the best of them, but when December rolls around he's out in the field behind a young pup and old veteran on the prowl for Mr. Bobwhite. He's earnest in his work but he's just a little more sincere when he's slow-trailing a jump covey.

And though you get sore at him in the winter, you know you'll always like him. There's something about him that rings true—he's almost too honest. He's a simple and kindly man who asks no more of life than that the birds fly fast, the dogs hold tight, and everything has a sporting chance to live or die.

*Based on Alan Beck's "What Is a Boy?"

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Wildlife Commission Sets 1961 Fishing Regulations

At its October 31 meeting the Wildlife Resources Commission adopted fresh-water fishing regulations for the 1961 fishing season. Other than a calendar change on the opening date of the mountain trout season (April 1, 1961, as opposed to April 2, 1960) there were no important changes in the fishing rules. Printed copies of the 1961 fresh-water fishing rules will be published and ready for distribution by fishing license dealers by January 1, 1961.

Hyde County Shooting Hours Unchanged . . . Until . . .

In response to many inquiries with regard to the 4:00 p.m. closing of shooting hours in Hyde County during the waterfowl season, the Wildlife Resources Commission has pointed out that it has no jurisdiction in the matter. Federal waterfowl hunting regulations allow shooting from one-half hour before sunrise to sunset this year. The 1953 Legislature, however, passed a law applying to Hyde County, curtailing afternoon shooting to the 4:00 p.m. deadline. An act of the Legislature will be required to bring Hyde County shooting hours within those prescribed by federal regulations.

Boating Safety Stressed

According to State- and Federally-required accident reports, eighteen people lost their lives in boat accidents on North Carolina waters since last January 1, compared to eight hunting accident fatalities during the 1959-1960 hunting season. The Wildlife Resources Commission reports that the eighteen boating fatalities occurred during a period wherein fewer than 38,000 boats were registered, while the eight hunting fatalities occurred during a similar period when nearly 400,000 hunters were licensed. A Commission spokesman pointed out that while boating accident reports are required by law, there are no statutory requirements for reporting hunting accidents.

Christmas Subscriptions . . . Hurry!

Enclosed with this issue is an order blank designed to make it easy for you to buy a subscription to this publication for friends, kinfolk, or people you just want to get even with. Better hurry, though; time is running short.

While we are on the subject, all of us on or working with the North Carolina Wildlife Resources Commission wish for you and yours the very best during the Holiday Season!

Checking station. Successful hunters swap hunting tales while waiting to have their deer checked at Uwharrie. Data obtained from kills is useful in management. Refuge personnel, protectors, and biologists work long hours during managed hunts.

The Work Behind MANAGED HUNTS

Photo Feature by Jack Dermid

Road construction. Roads into wild country make it possible for hunters to harvest game that would otherwise be unavailable. This crooked road through Holly Shelter thickets permits safe roadway shooting with hunters placed on alternate turns.

Marked trails. Hundreds of miles of trails are maintained in wildlife management areas for hunters. Good trails permit a safe distribution of hunters throughout the forests.

Compartment r
maps showing
streams, enabli
and lessening t

Protection. Refuge personnel are on a year-around alert to protect deer and other wildlife from poachers. The task calls for endless patrolling and many night stake-outs to apprehend firelighters. Result: more hunting opportunity for sportsmen.

SPORTSMEN who visit wildlife management areas only during the hunting season see but a fraction of the great amount of work required to make managed hunts a reality. It is a big, year-around job to keep North Carolina's 18 public hunting areas productive and accessible to hunters.

The Wildlife Resources Commission determines the policies that will be of most benefit to Tarheel sportsmen and directs the Game Division to carry them out. The management practices pictured here are only a few of many activities. Others include surveying and marking boundary lines, controlling stray dogs, and maintaining Commission equipment. Behind-the-scenes planning and paper work is tremendous and ranges from plotting new roads on topographic maps to publishing annual regulations. The result is big dividends in hunting every year for more and more sportsmen throughout the state.

Browse lanes. The sounds of brush axes echo across management areas during spring and summer months. Besides making remote areas more accessible to hunters, browse lanes provide an abundance of tender sprouts and other low-growing foods.

s are given pocket
roads, trails, and
plan their hunts
of becoming lost.

Wildlife plantings. Small permanent pastures of clover and fescue are interspersed about refuges to supply a greater quantity and variety of food for deer and other forest game.

The Wildlife Commission's airplane is used for a variety of purposes. Law enforcement accounts for most flights, but the airplane is also available for management area surveys, engineering inspections, education activities such as aerial photography, and for rapid observation of forest fire damage and damage caused by other disasters. An integral part of many operations is radio contact with Commission personnel on the ground. A network of radios can place the airplane in contact with patrol cars and protectors on foot.

Photos by Jack Dermid

Wings For Wildlife

by Bob Hazel
Chief, Wildlife Protection Division

Aircraft are used for many purposes, but only during the last few years has the airplane come into its own as a tool of wildlife management. This is the story of how this tool is used in the enforcement, research and education phases of the Commission's program.

ONE bright Thanksgiving Day about two years ago, a rabbit hunter in a Piedmont county saw some wildlife protectors checking another group of hunters half a mile away. Not having a license himself, he immediately slipped into a patch of woods and headed for a friend's home—unobserved, he thought. Nothing was in sight except a small plane, lazily circling in the sky.

Crossing a field, he came to a road and hiked unconcernedly a mile or so into a rural community where his friend lived. Just as he reached the house, a wildlife patrol car pulled up beside him.

The officers asked to see his non-existent license. The hunter was caught, and undoubtedly was mystified as to how it happened. The airplane was still lazily circling in the sky above him, in radio contact with the patrol car.

It has often been said that modern wildlife management requires modern equipment and techniques, and this is especially true in law enforcement. One of the items of equipment most recently to come into wide use in most states is the airplane. Actually, in North Carolina, the use of aircraft is not new since they have been used by the North Carolina Wildlife Resources Commission almost since the day it was created in 1947, and the Commission has been the owner of several aircraft during the past twelve years. During this period, these planes have been put to some very interesting uses.

One of the first uses of aircraft in the early days of the Commission was wildlife inventory and cover mapping work. A state-wide county-by-county inventory of wildlife resources was one of the first projects undertaken by the Commission, and airplanes were frequently used in the course of this project.

In the intervening years, aircraft have been used for further inventory work such as the annual post-season inventory of wintering waterfowl in North Carolina. This survey is conducted immediately after the close of the waterfowl season. It is co-

ordinated by the U. S. Fish and Wildlife Service, and both State and Federal aircraft are used to make counts of waterfowl on all the areas where appreciable numbers of waterfowl are found. This information plays an important part in the waterfowl management of the Fish and Wildlife Service.

Aircraft have been used more recently to make counts of deer in various parts of the state, particularly on management areas where deer populations are thought to be reaching the carrying capacity of the range.

Aerial surveys in themselves are generally not accurate enough to provide reliable population figures, but when used in conjunction with ground censusing techniques such as deer drives, they help provide information which is valuable in managing this important resource. Aerial deer counts have also been used to observe the use and effectiveness of food plantings made for deer on some management areas where supplemental food is needed.

Another important use of aircraft is the survey of areas which have burned by large forest fires. Such surveys are usually begun while the fire is still in progress and continue for a few days afterward, in order to determine the damage done to deer herds by the fire. During recent years, these surveys have indicated that forest fires are generally not as destructive to deer herds as once believed.

Aerial surveys are also made during periods of heavy snow to learn if deer herds are able to move about and to obtain food. During last winter's heavy snow, for example, such surveys were made on several of the mountain wildlife management areas where the deepest snows occurred. Deer were seen moving about and feeding, and the herds were not seriously harmed by this adverse weather. Information such as this was valuable not only in alleviating the fears of many sportsmen, but was also useful in setting hunting regulations for the current season.

Another use of the Commission's plane is for aerial photography. Many of the photographs appearing in *Wildlife in North Carolina* have been taken from this airplane.

Still another use is in surveys of refuge boundaries, road building projects, and potential fishing access areas. Several of the roads recently built on wildlife management areas were planned largely as a result of flights over these remote and inaccessible areas.

Portions of the Outer Banks along Currituck Sound, while not a part of any wildlife management area, are nevertheless frequently surveyed to observe the condition of the barrier sand dunes that prevent salt water from entering this important fresh-water fishing area. This is an easy and effective way of detecting breaks through which ocean water might enter, and in planning dune reconstruction work with sand fences.

One very interesting use of the Commission plane is in connection with the annual fox dog field trial held each year by the North Carolina Fox Hunter's Association on the Caswell management area. Observation from the air, communicated to the ground by radio, are extremely helpful during this event by keeping field trial judges in contact with the several fox chases which are usually going on simultaneously over a wide area. Hunters and Com-

Enforcement employees of the Wildlife Commission work in close contact with the airplanes through the use of two-way radios. The airplane is frequently used to check hunting activities, and protectors on the ground are kept busy checking hunting parties while the airplane locates others. Radio contact is not limited to automobiles; handie-talkie radios permit officers to transmit and receive while on foot. The radio network is cooperating with Civil Defense and is available during times of disaster for emergency communications, as is the airplane—which can provide a mile-high antenna for the network.

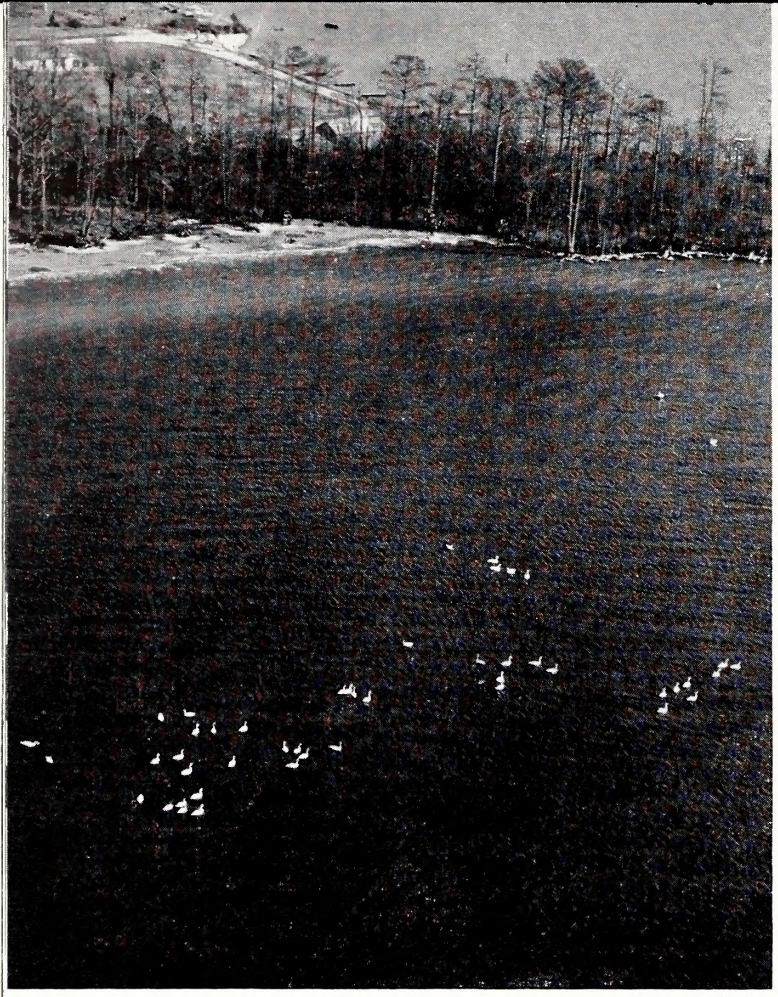


Photo by Jim Lee

Whistling swans rest on the waters of Albemarle Sound. Aerial counts of wintering waterfowl in North Carolina help greatly in the management of this resource by the Federal Government.

mission personnel alike feel that this has done much to make this a more effective trial.

The most important use—and the one for which aircraft are most frequently used—is law enforcement. Aerial observation, coupled with radio communication to patrol cars and protectors on foot, is a very effective way of locating hunting and fishing activity. Concentrations of activity which otherwise might go undetected can be located by this method. The airplane, therefore, is a useful tool throughout the year for law enforcement work. It has been extremely helpful in solving enforcement problems in areas otherwise difficult to control.

Checking of hunting activity from the air is usually done by a pilot and observer in the plane, with three or four patrol cars on the ground working in close coordination. The men in the patrol cars are equipped with handie-talkies—radios which they can carry with them on foot.

These enforcement teams are likely to be found operating most any day in any part of the state if weather is suitable for flying. The team may be checking an area for reported or suspected illegal hunting or fishing, or they may be engaged in routine patrol—checking all the activity in an area.

On routine patrol the plane conducts intensive searches for all hunting and fishing activitiy in the area covered. Patrol cars stay close to the plane so they may be dispatched within a matter of minutes or even seconds.

During the hunting season, we have found that it is not unusual to locate and check a hundred hunters scattered over one portion of a county during a single morning or afternoon operation. Often several different hunts will be in progress, and two or three may be checked at the same time—while the plane is locating other hunting parties. These checks, in addition to proving a complete examination of all hunting activity in that area, reveal valuable information concerning the amount of activity which goes on in various parts of the state.

Fishing activity can be checked in the same manner by using patrol boats equipped with handie-talkie radios. One important use of the plane is in locating illegal fishing devices such as nets, traps, and other gear. Often, such devices are nearly invisible from the surface but can readily be spotted from the air.

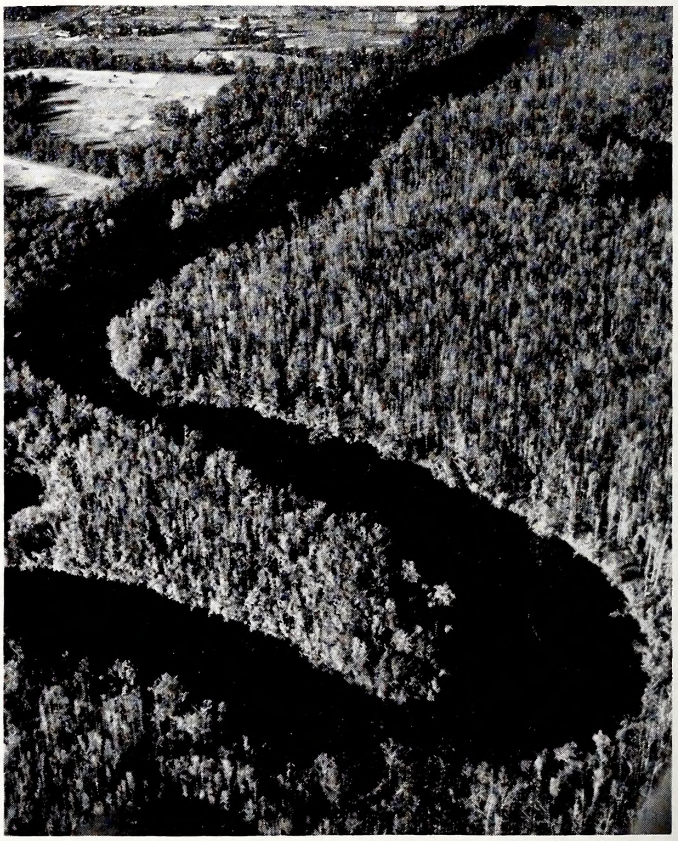


Photo by Jack Dermid

Aerial surveys of wildlife management areas aid in the location of boundaries and the construction of roads. Access area location is also aided by this convenient means of inspection.

Proper use of aircraft in law enforcement is a matter of training and experience. During the past several years this technique has been refined to a high degree of efficiency in North Carolina.

Both the air crew and the men on the ground must be trained. The air crew has a particularly difficult job because the pilot must fly the plane at low altitudes. The observer must know his pre-

cise location, the names of local landmarks, and the location of the men on the ground.

This requires extreme concentration on the part of the pilot and the observer, and rapid execution of orders and directions by the ground crew. It may also involve flying in areas of rugged terrain or during unfavorable weather conditions. It is sometimes hazardous, and certainly is no work for amateurs.

Patrol work with the airplane has an important psychological effect on the hunting and fishing public, and probably does much to prevent many violations. Also, the airplane has helped us in making prosecutions which otherwise might have gone undetected. Each year a good number of cases are made with the use of the airplane, and many of these would have been missed without it.

Aerial operations sometime result in extremely amusing incidents which break the monotony of the work. For instance, I recall an incident which occurred several years ago in one of our Piedmont counties while we were checking pre-season squirrel hunting. Several shots were heard in a wooded area, and within a few minutes two hunters carrying guns and accompanied by dogs were seen walking down a rural road next to the woods.

When they saw the airplane they immediately ran to the nearest farmhouse, several hundred yards away. They could not get in the house.

The men hid on the front porch, but soon realized that they were still under observation by the circling airplane. They began to circle the house themselves, on foot, trying to keep on the opposite side from the plane.

After several circles, they decided that this wasn't successful, and they ran into one of the small outbuildings still found behind rural residences and marked a half-moon on the door.

At this moment, one of the patrol cars which had been sent to the scene by the plane pulled into the driveway, and the men in the outhouse realized that even this refuge was insecure. They ran from the building at full speed toward the nearest patch of woods, but were soon apprehended by the men from the patrol car.

On another occasion, a large group of rabbit hunters was observed in an eastern county, and several protectors were directed to this hunt on foot. Sighting the officers, one hunter set off cross-country at full speed—without even slowing for fences or other obstructions.

After covering nearly two miles at record speed, he finally came in sight of his house, just across the highway from the farm lane he was traveling. He almost ran into the side of a patrol car, which pulled across the end of the lane as he arrived.

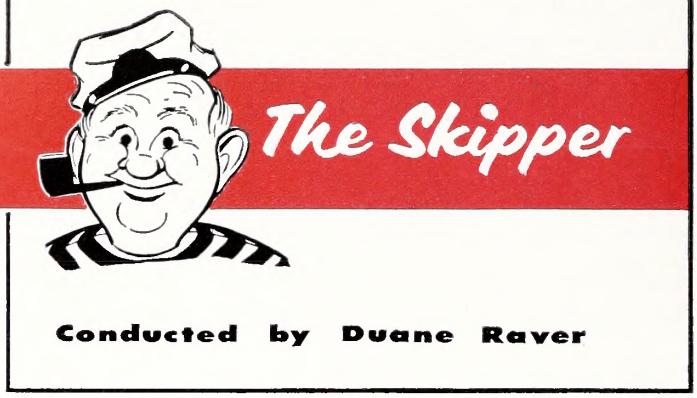
Perhaps the most amusing aspect of this incident is the fact that this hunter had his hunting license on his person and had not violated any law. The only explanation he could give for running was that he became frightened on seeing several officers approach the party.

The Commission's aircraft are sometimes used in helping other agencies with law enforcement problems. During the 1960 search for outlaw Robert Tyson in Wake County, the Commission's plane and a number of patrol cars were used as part of the coordinated search. Other instances when the use of the plane has benefited other agencies could be mentioned.

The airplane has come of age as a valuable tool of wildlife management. We feel that the Wildlife Resources Commission has been a pioneer in this field, and many other states are now acquiring fleets of aircraft for this work. Further innovations will be developed in coming years, and the hunting and fishing public will become more aware of their benefits in times to come.

Photo by Jack Dermid

Enforcement of boating and fishing laws has been aided to a large extent by use of the airplane. In contact with protectors in boats, the airplane can locate scenes of boating or fishing activities, illegal fish traps and nets, and similar devices. The airplane has been used several times in search and rescue operations, being ideally suited for the task of locating lost fishermen and even submerged boats. Following hurricanes the plane has been used to survey damage to barrier beaches protecting fresh-water fishing areas such as important Currituck Sound.



Conducted by Duane Raver

What Happened?

COMPETENT witnesses viewing the same accident very often have decidedly differing opinions concerning just what happened. Boating accidents certainly have their share of varying accounts as to what actually occurred. At the time, it may not seem important to analyze the cause of the mishap; but most surely careful study of each accident is necessary to determine why it happened and how it might be prevented in the fture. Often blame must be established if the case goes to court. In any event "second looks" at boating accidents very likely will help us all in the seasons ahead.

One of the truly amazing things about 1960's boating accidents is the fairly high percentage of head-on collisions that took place. Some, of course, were complicated by poor visibility and darkness, but many simply were cases of one boat plowing into another in broad daylight. The explanation in several of these cases centered around failure to observe boating "Rules of the Road." Some operators even admitted pure carelessness. If anything is to be learned from these accidents it is "keep your eyes on the road."

It seems even stranger that a motorboat operated by an experienced boatman could run over a swimmer apparently fully visible in the water. Yet this very thing occurred in at least three cases. In one of them, the boat operator stated as the reason the accident happened, "The swimmer was careless!" He further stated that the swimmer dived beneath the water as the boat approached and that this contributed to the mishap! It isn't likely that the swimmer who was hit (and in this case only injured) shared the boater's viewpoint in just what had happened.

In another boat-swimmer tragedy—this one killing the swimmer—the boatman felt that swimmers should be restricted to specific areas zoned for their use. This accident reportedly occurred quite close to and parallel with the shore of a large reservoir.

It is difficult to pick out many boating accidents in which operator negligence did not play an important part. Of the few mechanical failures, steering cable malfunctions seem to top the list. Even here, without the apparently high speeds involved, the resulting accident possibly could have been averted.

All in all it is quite evident that most boating accidents happen when and where they are least expected. Over-confidence? It can't happen to me? Too much reliance on equipment? We may be hard pressed for an air-tight explanation in many cases. It seems hollow to simply say "be careful;" but it really takes little more than this.

Motorboat Registration Renewals

Like a lot of other things, your motorboat certificate of number expires December 31, 1960. The number now on your boat will remain the same, but the certificate of number card must be new. The 1961 pocket sized cards will be light green in color. If you haven't already received your notice and application for renewal, it will soon show up in your mailbox. Instructions for completing and mailing it are printed on the back. The annual fee remains at $3.00, and this amount, check or money order, must accompany the application.

The Protection Division of the Wildlife Commission reminds boaters that there will be no "grace period." Midnight December 31 is the deadline. If you have not renewed your registration certificate by this date, do not operate your boat or give permission for its operation.

Applications for renewal will be accepted any time. You may expect your new certificate of number by about December 20, or within a week after receipt of your application after this date. Be sure to make any corrections or changes necessary in the information to bring your certificate up to date.

If you are fortunate enough to get a new craft for Christmas, or otherwise acquire a new boat, apply early for your first certificate of number.

Help was nearby this time and a thoroughly soaked boat and crew were the only casualties. Luck may not always be with them. Would you be ready for a boat accident like this one?

Photo by Lonnie Broome

Carl W. Buchheister, president of the National Audubon Society, was the keynote speaker at the banquet. In addition, he presented a color movie on conservation.

J. L. Murphy (right) of Kill Devil Hills presents retiring Federation president Thomas Reese of Hickory a plaque for his outstanding contributions to conservation.

Betty Davis of Hayesville was named state winner in the 4-H Wildlife Conservation Project. James Yount of Newton presents her with $25 and an expense-paid trip to the annual 4-H Club Congress in Chicago.

PHOTO HIGHLIGHTS

Wildlife Federation Convention

THE North Carolina Wildlife Federation's annual convention was held at Fontana Village during mid-October, and an outstanding program coupled with a large attendance of sportsmen made it one of the most successful meetings in the history of the organization.

The three-day affair was highlighted by discussions on timely conservation matters by well-known state and national authorities, a banquet where awards of accomplishment in conservation were made, and a fishing rodeo.

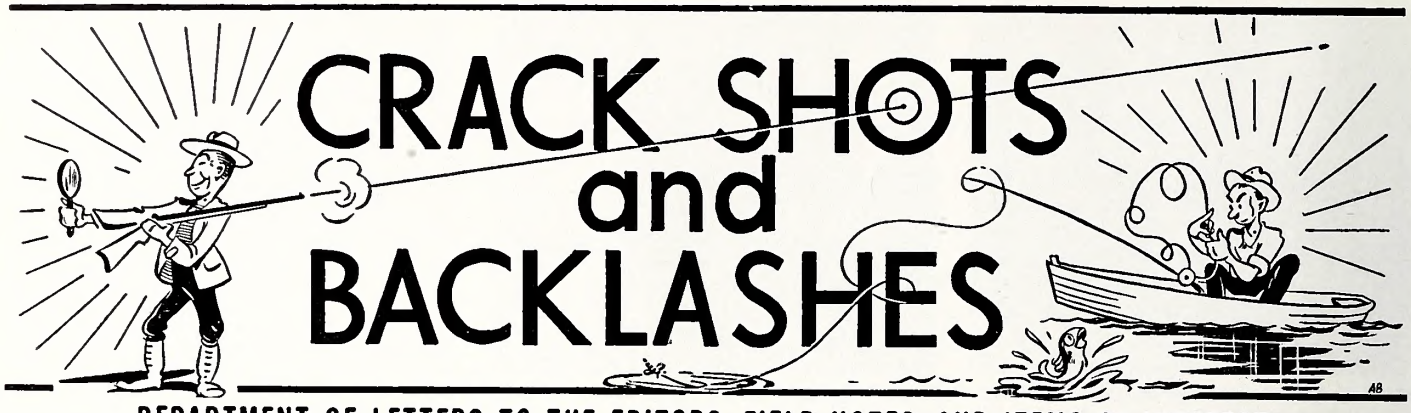
Speakers and their topics were: W. L. Hamnett, Wildlife Resources Commission, *Our Hunter Safety Program;* E. C. Hubbard, Water Resources Board, *Water Pollution;* D. J. Hankla, Wildlife Resources Commission, *Planting Powerline Rights-of-way;* Tom Kimball, National Wildlife Federation, *The State Affiliate and the National Federation;* and Bill Lawson, Fish and Wildlife Service, *The Proposed Kerr Reservoir National Wildlife Refuge.*

Recipients of Federation awards are pictured with the exception of Chester Davis of the Winston-Salem Journal and Sentinel who was named outstanding Tarheel outdoor writer of the year.

Protector Walter C. Phipps of Davie County received the Federation's Protector of the Year award for "extra work 'after hours' contributed in the cause of conservation." He is active with youth groups.

New Federation officers elected are: (L. to R. front row) Dr. George Heinitsh of Southern Pines, president; Walton McNairy of Greensboro, central vice-president; Phil Bracewell of Hickory, western vice-president; (Back row) Chester Arnold of Greensboro, secretary; and Turner Battle of Rocky Mount, treasurer. Norman Perry (not shown), Colerain, is eastern vice-president for the Federation.

The Rowan County Wildlife Association received the Governor's award as the outstanding Tarheel wildlife club for 1960. Federation President Thomas W. Reese presents the engraved trophy and plaque to George Miller, President, of Salisbury.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Five years ago, when Mrs. Barbara W. Marcelja was in high school, a local hunting accident moved her to write a theme with such impact that her classmates remember it even today. Her English teacher, Mrs. Catherine W. Lewis, submitted it to the *Wisconsin Conservation Bulletin*. The theme was called to our attention by the *Bulletin* and we pass it along to our readers.

We Were Just Playing

It wasn't too long ago, only a few months in fact, but it seems only like yesterday, when my friend, Jack, and I were playing in our back yard. Then I remembered it was hunting season, so I said to Jack, "My father has a gun in the closet with some shells. Let's go." So we went hunting.

As we walked down the tracks, I got a tingle up and down my spine. Maybe we shouldn't have taken the gun. What if someone should get hurt! Then it would be my fault. Well, everything went all right while we were walking down to the marsh. We shot at a few rabbits and ducks, but we missed them all.

On our way, home, we were fooling around, swinging the gun every which way. Then, kiddingly, I stuck the gun in his back and said, "Stick 'em up before I shoot you," and as I did that, I tripped over a stone, and the gun went off. I hollered and screamed, but no one seemed to come; then finally someone came. I don't remember who it was, or what happened afterwards. All I could remember was a shot and Jack falling.

After I came to, they told me Jack was dying. I wanted to see him, but when I got there, Jack was dead.

I thought everyone was against me, and I thought they all blamed me for killing Jack. After I got home from the hospital, I ran into a field and sat there and cried. I sat there all day, until it started getting dark.

Then I went over to Bill's house, and he seemed very friendly. I talked to the rest of our gang, and they didn't seem to be against me either.

After I found out everyone wasn't against me, I went over to Jack's house to talk to his mother. She told me Jack's last words were, "Goodbye, Mom, I'm going to be real happy where I am going, so don't worry, and it wasn't Bob's fault—we were just playing."

I asked to be a pallbearer for his funeral. That took some of the pain out of my heart. There will always be a pain, and I will always remember just exactly how it happened. Though it happened months ago, sometimes I still dream about it, and I can hear his talking and laughing the way he was before he was shot.

In time, I think it will go away, but there will always be a scar. As for myself, I don't think I will ever hold another gun in my hand. When I get married, I want my son to have gun safety training if he has hunting on his mind.

Item from the Press: "Ducks, Tipsy from Liquor, Easy to Take."

MINNEAPOLIS (AP) — The ducks, tipsy on whisky-soaked corn, slipped and skidded on the ice and fell easy prey to the hunting dog.

That, game wardens said, was the way a number of tardy migrating mallards were snared from the ice of Lake Calhoun, a Minneapolis lake.

Corn soaked in whisky was tossed onto the ice where the ducks have been congregating. When the birds became too drunk to realize their predicament, a dog was sent out to retrieve them.

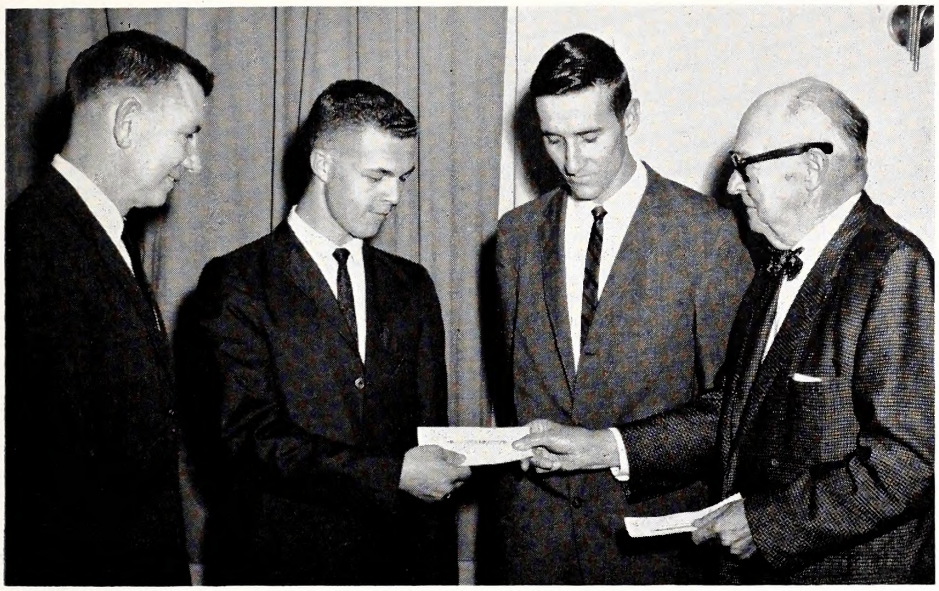
Game Warden Ernie Boyd said the law violator has a date with a justice of the peace because of the novel game-bagging idea.

Boyd said six ducks were found sobering up on the violator's back porch and that 36 more ducks were in a home freezer.

Epicure's Delight

DEAR SIRS: I have a question that I would like you to answer. It has nothing to do with hunting and fishing but does pertain to one phase of our outdoor life.

For years I have admired the texture and appearance of the "puffball" or moon melon, particularly at this time of year when they grow in profusion on my lawn. I have often told my Better Half that I was going to attempt to eat one or more



Two freshmen wildlife students at State College received $250 scholarships recently from the North Carolina Wildlife Educational Fund of the North Carolina Wildlife Federation. Shown at the presentations are (left to right): Dr. F. S. Barkalow, Jr., zoology department head, students Larry W. Sides of Wallace and Jerry L. Holloman of Seaboard, and P. K. Gravely of Rocky Mount, who awarded the checks.

to see for sure if they are edible. I have heard they are edible, and that when prepared correctly they compare with the standard commercial mushroom. She says that before I do eat any I should inform my relatives and neighbors of my intentions so that she doesn't get the credit for poisoning me.

I am hoping that you can tell me if these melons are edible, and if so how to prepare them; I imagine that by the time I receive your answer that this year's crop will be gone but I will know for next year. JAMES M. BUTLER, GREENSBORO

On receipt of Mr. Butler's letter we sent a card hoping that it would reach him in time to enjoy a feast of moon melons before the season was over. All types of puffballs are edible, and delicious when cut in thick slices and simmered in butter. Or chopped and cooked with a steak. Pass the biscuits, Mirandy!

Care For Injured Dogs

If your dog is injured while hunting or otherwise, the proper first aid treatment may save your dog's life and ease its pain. Dr. Gerald Somers of Alton, Illinois, a veterinarian, offered the following pointers on how to handle some of the more common accidents which may happen to your dog:

"Wire cuts and gashes, such as caused by jumping fences, should not have iodine or mercurochrome poured into them. Strong disinfectants burn healthy tissue and delay healing. Wash the dirt out of the wound with clean, cold water.

"If long hair hangs into the cut, clip the hair away from the edges. If you think the gash is bad enough to need suturing by a 'Vet,' don't think it over for a couple of days, but get it done while the wound is fresh. It usually heals quickly if closed when fresh, but a wound a few days old, with infection started, may take a long time in healing.

"Should your dog be accidentally shot, and it happens every day to the best of them, or should he get hit by a car or otherwise seriously hurt, just remember two things: Keep him warm and move him as little as possible. Don't let a bleeding dog hobble to your car. Carry him there. If he is weak from shock or loss of blood, don't take him home in the trunk; put him up in front and turn up the heat.

"Tin cans and broken glass can cause some severe foot injuries. An emergency tourniquet, fashioned from a leather shoelace or tightly twisted handerchief, applied to the leg, will usually slacken the loss of blood from a badly cut foot.

"If you think that your dog's leg is broken, remember that bending and twisting the leg to find out just how bad the fracture is can turn a simple break into a hopeless one.

"Don't forget, and a lot of hunters do forget, that a dog which is running all day and working hard, needs more nourishment than one that is dozing the day away in his pen. Increase his food. And if he is really working hard, add some meat scraps or horsemeat to his rations.

"And lastly, don't expect that canine backyard loafer, who has chased nothing faster than horseflies, fleas, and soupbones all summer, to turn into a rough, rugged outdoor critter overnight. Break him in easily and gently, as you would yourself."

All hunters and dog owners will do well to remember Dr. Comer's suggestions. A little care at the proper time is of great importance, and may save your dog's life. *Harold Brand, Alton Illinois Telegraph*

December finds Canada geese by the thousands at Gaddy's Pond near Ansonville where they respond to protection and permit close observation by visitors. A visit to Gaddy's Pond is an exciting and unique experience that will be long remembered.

PROTECTOR OF THE MONTH

Vance M. Link

Vance M. Link was born in Lenoir on May 20, 1936. He received his education in the public schools of Whitnel, at Hudson High School, and at Brevard College. He attended the 1957 session of the Wildlife Protectors' Pre-Service Training School at the Institute of Government in Chapel Hill, and has since attended three in-service training schools.

Mr. Link was employed by the North Carolina Wildlife Resources Commission on February 15, 1958, and he is stationed in Wilkes County. He is married to the former Myrna Watson, and they have one child. The Links are members of the First Baptist Church of North Wilkesboro, where they reside.

ENFORCEMENT RECORD FOR SEPTEMBER

HUNTING & FISHING:	
Persons checked	24,926
Total prosecutions	479
Total convictions	471
Total cases not guilty	5
Total cases nol prossed	3
Total fines collected	$2,059.75
Total costs collected	$3,544.85
BOATING:	
Boats checked	3,807
Total prosecutions	129
Total convictions	123
Total cases not guilty	4
Total cases nol prossed	2
Total fines collected	$ 433.50
Total costs collected	$ 942.35

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

Lucretia Comes Visiting

DEAR MR. AMUNDSON: I really enjoyed my visit to the Raleigh office of the Wildlife Commission recently, but one thing puzzles me.

What were you doing sitting in the middle of the floor in your office, fishing with a cane pole in a bucket?

Don't you think maybe you'd better see a psychiatrist? LUCRETIA PLYMPH, WAKE FOREST.

Well, Lucretia, perhaps I should see a psychiatrist, but they're pretty expensive—and besides, we need the fish.—Ed.

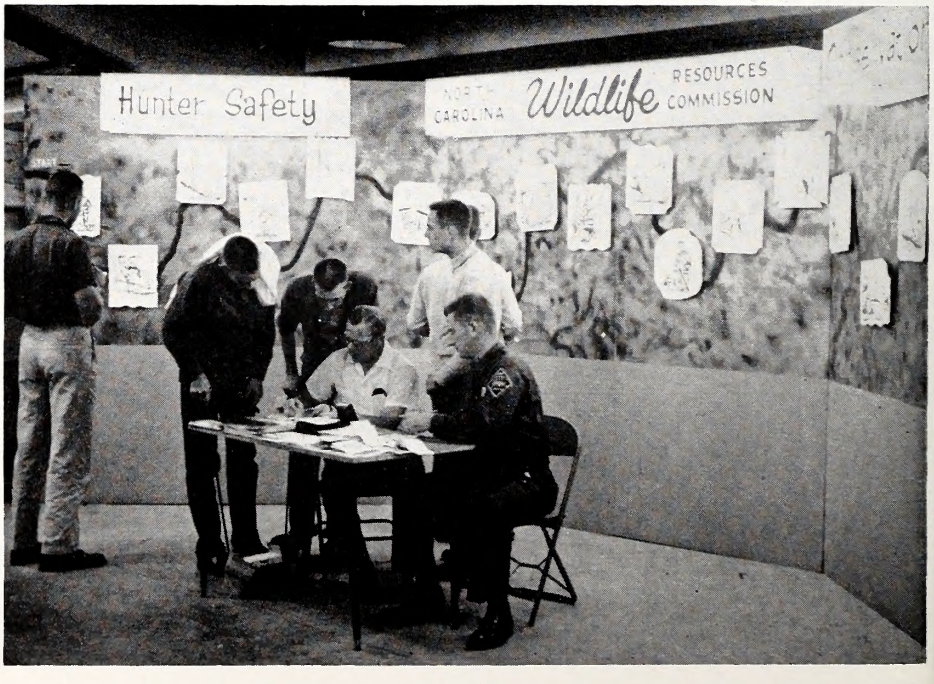
Forest Supervisor Redding Resigns

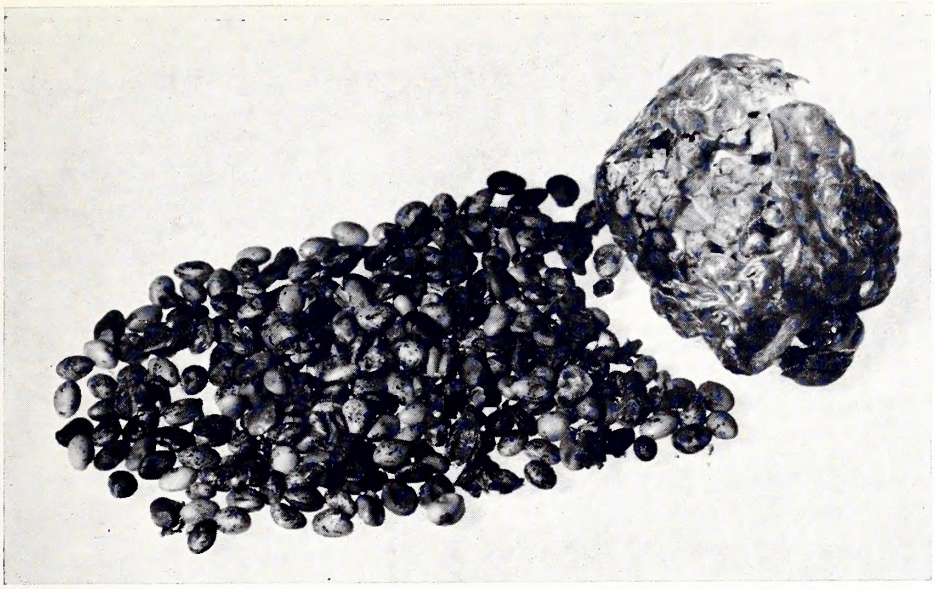
Announcement has been made that Hugh S. Redding, Forest Supervisor of the North Carolina National Forests for the past three years, is retiring from the U. S. Forest Service on December 31, 1960. Mr. Redding plans to enter into private consultant forester work, specializing in developing forest policy, with offices at Leesville, Louisiana. He will cover the eleven Southern states from North Carolina to Texas.

Mr. Redding has had a wide range of experience in forestry, having had two years in North Carolina and six years in the northwest with private industry in logging and lumbering industries before entering the United States Forest Service in 1924 in northern Idaho. For the past twenty years he has managed National Forests in Arkansas, Georgia, Mississippi, Louisiana and North Carolina. His experience in establishing policy and cooperative relations in recreation and game management with the North Carolina Wildlife Resources Commission has been effective to the sportsmen of North Carolina. He completed the requirements for a B.S. degree in Forestry, specializing in Logging Engineering in 1931 at the University of Montana and is a native of Randolph County, North Carolina.

STATE FAIR EXHIBIT

Hunting safety was the theme of the Wildlife Commission's exhibit at the 1960 State Fair. A cartoon quiz was taken by 1,084 people, including three housewives below: Shirley Pearce, Frances Spencer, and Shirley Dean. Most of those taking the test showed a good knowledge of the principles of safe gun-handling, but only 75 people made 100 percent on the written test.





Here's proof! This quail crop showing a predominance of shrub lespedeza (bicolor) seeds is a testimony to the great value of this plant to small game. Last winter, the Commission supplied over 8,000,000 seedlings free to landowners. The 1960-61 crop is now ready for distribution. Write the Game Division for an application form.

Sewage Treatment

Since 1956, according to the U. S. Public Health Service, a total of $180 million of federal funds have been granted to 2,156 communities as sewage treatment plant construction aid. The total cost of constructing the facilities was over one billion dollars.

This has resulted in the improvement of over 21,000 miles of streams for drinking water, fishing, hunting and other recreation and for use by industry.

In North Carolina during this period 61 projects have been begun with federal cost-sharing. These have an estimated cost of more than $31 million—but the federal share amounted to only $6.3 million. Thus four local dollars matched each federal dollar to build the treatment facilities. Now 34 applications are pending.

A Goldfish By Any Other Name

DEAR MR. CORNELL: Please give me definite answers to the following questions concerning minnows used for fishing in a 65-acre lake which is stream fed:

Some bait sellers advise that now the Wildlife Resources Commission has decided that the best minnows to use are Baltimores. Is this correct?

I know already that the best minnows to use in a stream-fed lake are the natural minnows from the stream or lake. There is no doubt in my mind about this.

The main question I want answered is this: These bait sellers say that shiners should not be used at all because they will "take over" the lake within a few years because they are so "fast" that a bass can not catch them. If you could only use either Baltimores or shiners, which of the two types would be best to use in a stream-fed 65-acre lake?

I am told that Baltimores can not reproduce in a lake and that shiners can. I think either of them can reproduce. Is this true?

I certainly would appreciate it very much, Mr. Cornell, if you would send me definite information on the above questions. Thank you very much. J. T. JUSTICE, JR. KERNERSVILLE, N. C.

DEAR MR. JUSTICE: We are glad to reply to your letter concerning the use of minnows for fishing in a stream-fed 65-acre lake. The Wildlife Resources Commission has many employees, and I cannot answer for what any particular one of them may have said about Baltimore minnows being the best to use. Personally, I can assure you that I have never recommended the use of Baltimore minnows as fish bait in public waters or anywhere else.

You have repeated the standard advice of the Wildlife Resources Commission on the subject of bait minnows. That is, that the bait used in any particular stream or lake should be the natural minnows found in that body of water. By following this procedure there is no possibility of the introduction of exotic species which may be undesirable.

So far as reproduction is concerned, any species of fish will reproduce when it finds the conditions which represent the requirement for the species. It is true that Baltimore minnows are quite specific in their spawning requirements and that these conditions are not represented in a great many of our public waters. However, Baltimore minnows have become established in some waters, and there seems to be no logical reason for promoting the use of this species. Lacking some reproductive potential, the species would have died out long ago.

Shiners are generally distributed over the warm water habitat in this section of the Atlantic Coast drainage. Regardless of their desirability, their use does not carry the possibility of introducing another nongame species. Since they ordinarily are present in the warm waters of the state, the use of additional shiners as bait minnows can be expected to make no difference in the total population. I am not informed on the rate of speed at which a shiner can swim, but the results of many stomach analyses on bass indicate that they feed extensively on shiners. Presumably they are not so fast as to elude a hungry bass.

So far as your 65-acre lake is concerned, I recommend the use of shiners in preference to Baltimore minnows. J. H. CORNELL, CHIEF, FISH DIVISION

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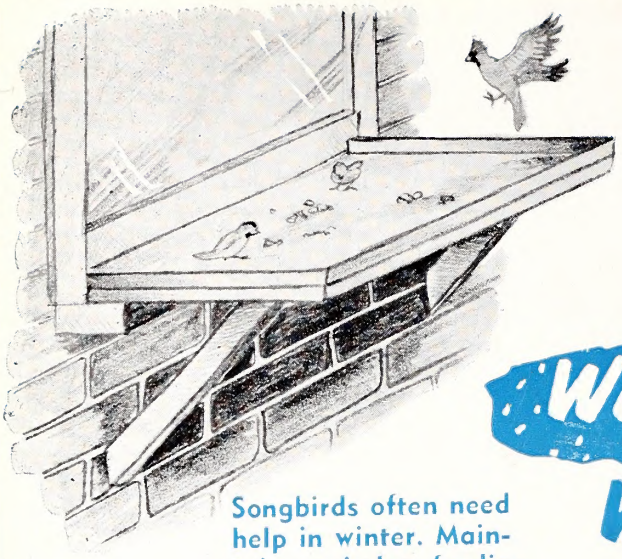
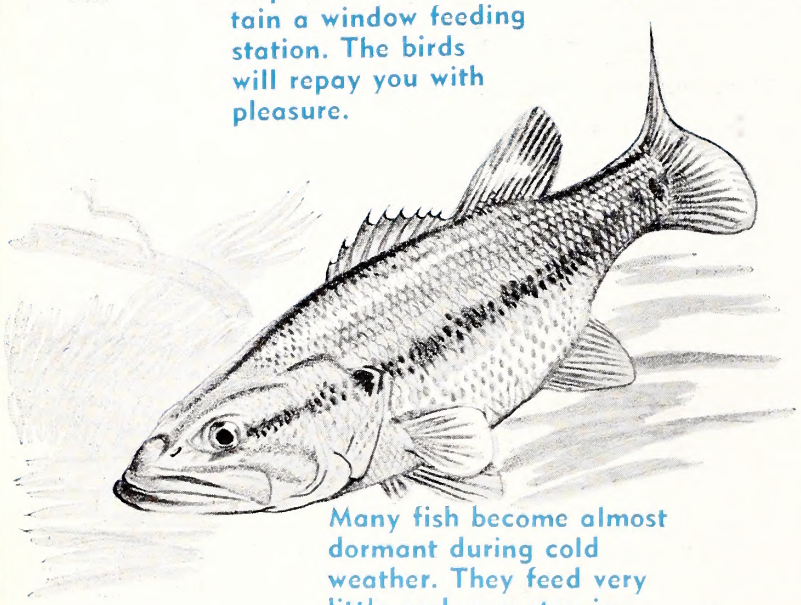


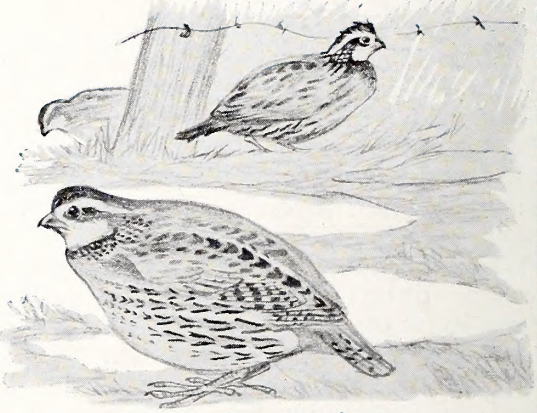
Winter Wildlife

Songbirds often need help in winter. Maintain a window feeding station. The birds will repay you with pleasure.

Food for deer may become scarce in winter. Shooting of deer of either sex sometimes is necessary to prevent loss by starvation.



Many fish become almost dormant during cold weather. They feed very little and may stay in one location.



It's too late to plant food and cover plants for these quail. Some birds won't survive the cold of severe winter.

The meadow jumping mouse is one of the few true hibernators (winter hibernating position at left). The black bear's winter sleep may be only a few days at a time in the warmer part of its range.

PRINTED IN U.S.A. BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

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Wildlife in north carolina

ten cents

january 1961

Photos by Jack Dermid

Crop of the Land

Many people consider wildlife as something that just occurs, something interesting to watch or a challenge to pursue. But the very practical conception that wildlife is a product of the land should not be overlooked. In fact, the very science of wildlife management is based on this basic fundamental and calls for providing our birds, fish, and game with all the essentials necessary for them to flourish. Good land and water management does just that, making it possible for wildlife to produce a crop or surplus for harvest. Wildlife cannot hold its own when the land is neglected and habitat destroyed. The Commission's wildlife management program is designed to fit into and augment the best principles of land—soil, forest and water—management.

North Carolina State Library
Raleigh

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

LUTHER H. HODGES
Governor

North Carolina Wildlife Resources Commission

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COVER

The exciting scene on our front cover happens more often than quail hunters like to admit. Our hunters have had a good day in the field, but they need a few more shots to bag their limits. And just as they call it quits, a covey bursts like thunder from the annual food patch by the lane. They had missed the covey on the first go-around.

These hunters and their dogs know where to find birds. They head for field borders of shrub lespedeza and annual food patches (shown), which contain a variety of choice quail foods. Spikes of milo stand above a tangle of soybeans, cowpeas, millet, and more. Planting mixtures are supplied free to landowners as a part of the Commission's farm game program. Water color by Bill Ballard.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Photo by Jim Lee

The Eel—Creature of Mystery

by Darrell E. Louder
Fishery Biologist

CALLED by some a snake, thought by others to be a male catfish, completely ignored as a fish—the American eel lives out his murky existence beneath a shroud of misinformation.

The eel is found in almost every pond and river in the Piedmont and Coastal Plain in North Carolina. Yet mating takes place a thousand miles away, and only recently has information come to light about the breeding habits of this fish that doesn't look like a fish.

The fact that this reptile-like creature is actually a true fish may surprise some. The long slender shape is unlike any other fish in fresh water—but gills are present, he has jaws much like other fish, and he does have scales. The caudal and anal fins are connected in one fan-like-fin, however, and the scales are extremely small and deeply embedded.

Over the Eastern United States

The American eel is widely distributed across the North American continent. Draw a line from central North Dakota down through the Texas panhandle, exclude only North Dakota itself, northern Minnesota and upper Michigan, and you have the range of the eel—all of the eastern United States.

Eels, like chameleons, can change their colors to suit surroundings. Normally they are dark muddy brown or olive brown above, tinged with yellow on the sides and blending to a pale brown or dirty yellowish-white below. The American eel can change from a pale color to a darker color in an hour and a half, and back to the paler color in approximately three hours.

A Complex Life History

The most interesting and unique aspect of the eel is his complex life history. The American eel spawns but once during his life, although some specimens have been known to live 50 years.

During the early fall months some mature eels descend the coastal rivers and streams to the sea. Even managing the squirm over land on damp nights when artificial barriers block their way, they follow their spawning instinct to return to the ocean.

Once they leave fresh waters, they cease eating and travel at the rate of half a mile an hour toward their spawning grounds far to the south. This is a one-way trip; shortly after the spawning both parents die.

Their destination is the beginning of the Gulf Stream—the Sargasso Sea in the warm Atlantic. The famed Sargasso Sea, between Puerto Rico and Bermuda, is a wide area covered with floating weeds and debris. Here, at the saltiest place in the ocean and where abandoned ships drift in circles until they sink beneath the gentle waves, the American eel finds his spawning grounds.

Mating in the Murky Depths

During the trip to the Sargasso Sea—a journey of three months—the reproductive organs enlarge. After arriving on the spawning grounds the adult eels swim to a depth of some 1,000 feet. In these murky depths the eels mate, each female laying between 9,000,000 and 10,700,000 eggs. In a few days the adults die, their job completed.

The eggs hatch in late winter or early spring and the leptocephala, as the tiny eels are called at this stage, begin their lives with a length of a quarter of an inch.

After drifting with the Gulf Stream for about two months the leptocephala reach their next stage —at a length of two inches or so they change form and are called "glass eels." It takes the young eels a full year to reach the fresh waters of our eastern coast.

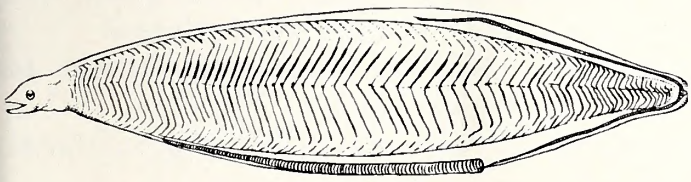


Illustration by Duane Raver

During late winter in the Sargasso Sea, eel eggs hatch into quarter-inch larvae that resemble leeches more than eels. The leptocephala, as they are known, transform into "glass eels."

The salty waters of the Sargasso Sea are also the spawning grounds of the European eel, and they spawn at the same time—but the European eels have two years of travel before they reach their destination.

Back to Fresh Waters

When the young eels reach the mainland they swim up the many rivers and streams by the millions. By now they are voracious, still growing slowly but excellent food for many other species of fish. The survival rate is very low, only a small percentage reaching maturity.

It takes young eels a full year to swim to the mainland where they move up rivers and streams by the millions. The elvers grow to maturity in fresh water before returning to the sea.

Photo by Rod Amundson

Commercial fishermen frequently capture eels in their baskets and use them as bait for crabs. A large eel provides a real fight for hook and line anglers. The flesh is of good quality.

The ascent to upland rivers and ponds is just as difficult as the spawning migration of the parents. Dams that block their way are by-passed on damp nights, when the young eels slither through the grass to reach the waters above.

In their fresh-water homes the eels grow to a known length of four feet for the females and a foot and a half for males. Female eels have been found weighing more than 16 pounds. Remaining snake-like in appearance, the eels develop scales after three or four years but these are tiny and hardly noticed.

The Eel's Role in Life

The American eel is used for food in some localities. The flesh is of fine texture and good quality. You may catch eels on hook and line, on trot lines, and in eel pots. Commercial fishermen often use the eel as bait for crabs, and a barrel of squirming eels is not an uncommon sight at commercial fish houses on the coast.

Just how the eel fits into the management of ponds and rivers for game fish isn't clearly known. We do know that they eat fish, crayfish, and most anything else they can find. But to condemn them as real trouble-makers in the average pond simply can't be based on fact.

It is pretty well conceded, however, in all but the eel's own circles that this is a fish that isn't beneficial to other fish populations. Sometimes removal programs are even in order. But, considering the role of the eel in most waters, and the annual crop of new migrants from the Atlantic, very little management is in order. We're stuck with this fish that doesn't look like a fish, and we might as well learn to like him.

More Hunting for Everyone

by Harold Titus
Conservation Editor, Field and Stream
Reprinted from Field and Stream

Clarence McBang, as he clomped out at dawn, was not a happy man. He was worried about the lengthened rabbit season and its threat to the future of rabbit hunting. But Clarence found out the truth about wildlife populations.

SOME time ago a Michigan sportsman whom we'll call Clarence McBang went rabbit hunting. Clarence loved rabbit hunting. The year before Michigan rabbit season had run 78 days and Clarence had been out every possible day of it.

This year, the season had been lengthened to 104 days—enough, you'd think, to delight the heart of a real, serious rabbit hunter. But Clarence, as he clomped out at dawn on the season's first day, was not a happy man.

The trouble with Clarence was that he was a thinker. What's more, as a lifelong rabbit hunter, he had strong opinions about his favorite sport, based on his own experience. And Clarence was sure that this new season, a third again as long as the old one, was too much.

Left to himself, Clarence would have stuck to the old season. But he had to recognize bitterly that there would be no sense in that. With everybody else hunting 104 days, he wouldn't accomplish anything by limiting himself to 78. Over that long a season too many rabbits would be killed, too few would be left—and where would his hunting be next year?

But if rabbit hunting was going to be ruined anyway, he might as well get his share. With some misgivings, Clarence set forth.

His season was successful, if not joyful. On one tract where he'd got 12 rabbits the year before, he got 15 in the longer season, and everywhere else the results were about the same. It ought to have been the best rabbit hunting he'd ever had, but Clarence couldn't enjoy it. He looked at the extra rabbits in his bag and shook his head, convinced no good would come of it. More rabbits this year —fewer next year. It stood to reason.

Clarence had never met Burton Lauckhart of the State of Washington's Department of Game, who might have told him the extraordinary case of Whidbey Island.

Whidbey is a long, narrow island, about three miles by 50, in Puget Sound. Twenty years ago the strawberry farmers on the island rose in wrath and demanded loudly of the state game commission and everyone else within earshot that the deer on Whidbey Island be eliminated. Under the state's buck-only law, which applied to Whidbey as elsewhere, the deer had become a menace, said the farmers, consuming large quantities of strawberries without paying for them. The deer, said the farmers, must go.

Any-deer Law

The game commission considered the situation. The annual take of deer on Whidbey was only about 100, the deer herd there probably only about 1,000. Isolated as it was, the island could be given special treatment in the law without affecting hunting anywhere else. The game commissioners shrugged. All right, they said, open up the hunting. Let Whidbey have an any-deer law. That'll do it.

The next season, the deer take on Whidbey was 380. The game commissioners smiled, satisfied. The deer were half gone already. The next year the

take was 400. This time the commissioners did not smile. According to the numbers, there should be hardly any deer left. Yet reports indicated there were a lot left.

The commissioners waited another year. The take was close to 500. Frowning, the commissioners investigated Whidbey, to find out what in the world was going on. They found the deer herd in fine shape. In the 17 years since then, the harvest has averaged more than 500 a year. The herd is still in fine shape. There is no report on the shape of the strawberry farmers. With hunting as good as it is, maybe nobody cares any more.

If Clarence had heard this remarkable tale, he would have been astonished. But he probably wouldn't have wholly believed it. As a horsesense thinker, he would have been sure there was some gimmick. How can you go on shooting 500 deer a year out of a small herd, stepping the kill up to five times the accustomed rate, and still have as many deer left as before?

Obviously, you can't. It's like one of those fairy tales, with a magic box or salt shaker or whatever it is that keeps on pouring out and never gets any emptier. Fantasy, for children. But Clarence was no child. He didn't want fantasy, he wanted hunting.

Now it happened that one of Clarence's friends was an enthusiastic bird shooter. Eager to try something new, he'd been out to Nevada to hunt chukar partridge. Great sport, he said, when he came back.

But then, keeping track of news from Nevada, he got worried. There was a drought there. Chukars, he explained to Clarence, like dry country, but they don't like drought—can't survive it, in fact. Shooting ought to be closed down, he said, until the drought was over.

Clarence figured it like one of those fairy tales with a magic box that keeps pouring out wildlife and never gets any emptier.

The Nevada authorities seemed to agree. They closed down chukar shooting—but not entirely. For some reason or other, they left it open in three counties.

Clarence's friend was good and mad. One of the open counties was the very place he liked to hunt. Those fatheaded fools, he told Clarence indignantly, were going to ruin the shooting there. He was so sore that for three years, while the drought lasted, he wouldn't go near Nevada. Then shooting was opened up again and he went back to the old place, just to see what had become of it.

Closed Season No Help

The shooting was fine. Clarence's friend couldn't understand it at all. In the places where shooting had been closed down it was good too, but no better than in the places where it had remained open. It didn't make sense, but there it was. Back home, the friend told Clarence about it, shaking his head in bafflement. Clarence couldn't make head or tail of it either.

The puzzle annoyed him, like a bothersome tooth. He couldn't let it alone. He knew what he knew and this was impossible—and yet it was a fact. There had to be an explanation.

For his own peace of mind, Clarence set out to find it. He began reading conservation reports. As a practical man, he'd never paid much attention to them before. They turned his world upside down.

He found, for instance, a report on a seven-year study made by two men of the Arizona Game and Fish Commission on Gambel's quail. Twenty-five years ago this quail was Arizona's top-ranking game bird, with a limit of 15 a day and a season of two months. Then rather suddenly—within a few years —the number of birds dropped sharply.

Shooting was tightened up more and more severely until it was virtually stopped altogether. But the birds didn't come back. Something was wrong. The game commission assigned two men to find out what.

The men set up study areas. Shooting was allowed in some, not in others. Careful arrangements were set up for census, for frequent checking in season and out. The work was detailed, exact and thorough. Of every 1,000 birds counted in September, hunters—where hunting was allowed—took an average of about 200.

Oddly—to Clarence—hunting pressure made practically no difference in the number of birds taken. In one case a rise in the number of hunters from 277 to 510—nearly double—brought an increase in the total bag of only 3 percent. Losses to natural causes, sickness and predators, were some-

Real trouble begins when hunters fail to harvest enough deer to keep the herd within the carrying capacity of the range. Severe over-browsing comes first, then starvation and disease.

thing else again; these accounted for more birds than the hunters did.

Going a step further, the game commission men trapped birds after the hunting season was over, to bring the population down to just half of preseason. The next year the population was right back up again where it had been before.

Plainly, overhunting wasn't cutting down the quail. Throughout the study the bird density was never higher on the unhunted land than it was on the land where hunting was encouraged.

Whatever had cut down the quail, the hunters weren't to blame. For years they had done without sport, thinking they were helping the birds. But in fact they hadn't helped the birds at all, and could have gone right on shooting without hurting the quail population—even if their average of hits had been twice as high as it was.

Poring over this report and others like it, Clarence began to sense an inadequacy in his arithmetic. He saw reports on deer, quail, squirrels—all kinds of game—and essentially all of them were alike. Gradually he got the hang of a new way of thinking. Start with 1,000 deer, take away any number up to 500 or so, and the following year you'll still have 1,000 deer. Reproductive capacity, of course—the old well-known urge, in full operation. Clarence had no trouble understanding that.

What he couldn't grasp so easily was that if you took none away you'd have no more in a year than if you took away 500. You might even have fewer. Where was good old reproductive capacity in such a case?

Take what happened in Colorado when state officials decided that their mountain sheep might be ready for some hunting. Such an uproar of protest went up that the officials didn't dare to issue permits. The sheep remained fully protected. And instead of flourishing and multiplying, they all but died out completely under no hunting at all.

Take the case of bobwhite quail in Ohio, where the bird has been on the protected list, no hunting permitted, for years. Are there more quail in Ohio than in the neighboring states, all of which have open quail seasons? The answer is, No.

According to expert estimates, there are probably fewer quail in Ohio, per unit of land area, than in the states next door to it.

The single most important factor in game population isn't whether hunting is allowed or not, or even the old reproductive urge; it's what is called carrying capacity.

Carrying Capacity

A tract of land can feed so many deer, or quail, or pheasants, or squirrels, or whatever. Put that many on it, and everything's fine. But leave them alone there and you'll have trouble.

The reproductive urge works, only to bang its head against the ceiling of the food supply. With not enough food to go around, weak animals sicken and die. As pressure against the limit of food supply continues, females, ill-nourished, bear fewer young, and often the young they bear are runty and deformed. The longer the pressure keeps on, the worse it is for all, until at last even the reproductive urge itself may weaken and all but atrophy through frustration.

If that happens, your game is gone—and all without any hunter ever firing a shot.

Most hunters, like Clarence, see the problem backward. They're afraid that if they shoot too much game the game population will be diminished. They ought to be more afraid of diminishing the population by shooting too little.

The ability of game to reproduce, where carrying capacity doesn't limit it, is astonishing. When chukars were released in the State of Washington, according to Burton Lauckhart, they increased so fast that much of their suitable range was saturated within five years.

Much of the same thing happened when Hungarian partridge were introduced in Saskatchewan. But once they hit the ceiling, the Huns began to fade again, even though they were only lightly gunned.

In Pennsylvania and some other eastern states, 20 to 30 years ago, logging operations suddenly and greatly increased good habitat for deer. The result was an almost explosive upward surge in the deer population. It hit the food-supply ceiling soon,

like the Huns in Saskatchewan, and began to fade. "Too much hunting!" cried sportsmen in a state of great alarm.

But the real trouble was that there hadn't been enough hunting to keep the habitat from being over-browsed. And unless there's more hunting, the deer herd will keep on going down.

Consider the pheasant. As any sportsmen knows, the life of a hen pheasant on a game farm is about five years. Taking that figure, a man with good sound arithmetic, like Clarence McBang, can "prove" that a kill of 20 percent a year will just keep the population in balance. Right? No.

Pheasant Longevity

On a range whose carrying capacity is fully occupied, the life of a hen pheasant is not five years, but one. This has nothing to do with losses by hunting.

Assume there is no hunting. Assume each hen raises two young a year, one of these a hen. Increase of her population at end of one year: 100 percent. If you assume the original birds and all their descendants live, the population increase in five years would be 1,600 percent.

But the carrying capacity of the range was full to begin with. Therefore, this explosion never gets going. The first hen born, together with its mother bird, makes one too many. By the end of a year, before any more are born, one must die. So your population turnover per year is not 20 percent the way Clarence figured it out. It's 100 percent. And the amount hunters ought to take each year isn't 20 percent, but 50 percent—in order to keep the population stable.

The way you figure the proper harvest for hunters to take is not by considering the life span of the game under ideal, noncompetitive conditions. The way you figure it is by combining reproductive capacity. If the reproductive capacity is 20 percent a year, the life span on the actual wild range will be five years, no matter what it may be for the same animal on a game farm, and the correct harvest will be 20 percent a year to keep the population in balance.

What it all boils down to is that you can't stockpile game. If you don't harvest enough, nature will. You get it when it's there, or you don't get it at all.

Around the country, game biologists are trying to drum this fact into the heads of hunters. It's a tough job. Too many, like Clarence McBang, just can't grasp that the way to have more game next year is to take more, not less, now. Others do grasp this all right but hesitate to come out and fight for more hunting. Some of them have been battered before, by well-meaning animal lovers who apparently think that if it weren't for hunters all animals would live forever.

These are vocal people, and their appeal to sentiment is strong. But they're contradicted by the facts of wildlife, and more often than not the pro-

Game cannot be stockpiled, and if hunters do not take the surplus, Mother Nature will. The ability of wildlife to reproduce where not limited by carrying capacity is astonishing.

Photos by Jack Dermid

tection they demand for wildlife does the game itself more harm than good.

Time and again, when game management men have proposed longer hunting seasons, or shooting doe deer as well as bucks, the first to oppose them have been sportsmen, who either don't understand the facts themselves, or are reluctant to stand up openly and assert them.

Clarence Sees the Light

Clarence McBang, beginning to see the light, took another look at his new rabbit-hunting season. In the 78-day seasons the rabbit population in Rose Lake region of Michigan ran from 16 to 84 per hundred acres, with an average of 41 just before the season began. In the four years of 104-day seasons, the population per hundred acres ran from 34 to 50, with a preseason average of 42.

In the 78-day seasons the hunters' average take of rabbits per hundred acres was 12, or 28 percent of the preseason population. In the longer seasons hunters averaged 15 rabbits per hundred acres, or 38 percent of the preseason number. Better hunting than ever before—and just as many rabbits to hunt next year.

Clarence was convinced. When Michigan's game management men suggested that still more rabbits ought to be taken, he didn't fly off the handle. The season was lengthened to 131 days. With a calm smile Clarence went out to enjoy it. At last report, he was having a fine time.

That's the way most sportsmen have to learn—by seeing results with their own eyes. There is certainly nothing wrong with that. It is, in fact, a very good thing. Game biologists, being human, can make mistakes too and the observations of good sportsmen can do much to correct them quickly, before they do any serious damage.

But it is important that sportsmen see honestly and clearly, that they look at the facts and not at their own ideas of what "must" be so, or at their fears of what somebody else might say about them. There's an immense amount of fact, and more coming in all the time. Most of it contradicts flatly what the majority of sportsmen think about game supplies.

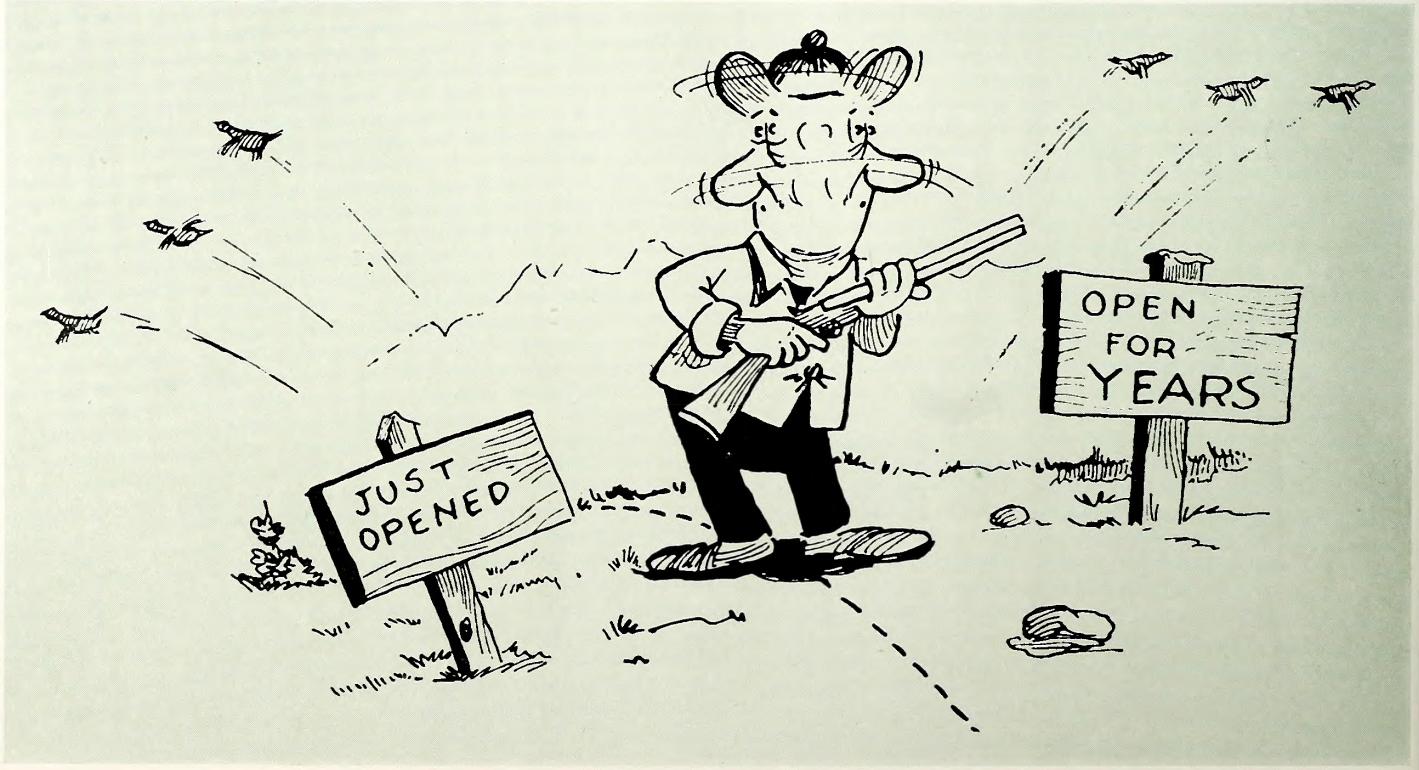
And the longer sportsmen shut their eyes to the facts or refuse to stand up and call attention to them, the worse things will be for the sportsmen and for the game they think they're protecting.

If recent recommendations by wildlife researchers are heeded by the officials who make our hunting regulations, there will be proposals in many parts of the country to lengthen seasons or increase limits of game. Among the men who know the facts, the view is almost universal that we are not hunting enough to keep our game supply at its best and most plentiful.

But when these proposals are made, what will sportsmen do? That's the question and the right answer to it is worth a lot more than $64.

Clarence McBang, for one, knows it now, after considerable self-education. If enough others recognize it and will say so, we can all have more and better hunting than we've ever had before, not just now but in all the years to come.

In places where shooting had been closed down for years, hunting was no better than in places where it had remained open.



NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

1961 Fishing Regulations Available January 1

The 1961 fresh-water fishing regulations are in the process of distribution to license dealers throughout North Carolina, and will be available after January 1 when the regulations and 1961 fishing licenses go into effect. There are few changes over the 1960 rules. A major change prohibits the taking of fish bait from designated mountain streams. This action was taken to prevent removal of natural trout foods by netting minnows and other live bait.

Boaters Need 1961 Registration Certificates

Persons operating boats powered by machinery of more than ten horsepower after January 1, 1961, must have in their possession a 1961 certificate of registration. Renewal notices will have been sent out to all registered boat owners by January 1. Persons acquiring new boats will be required to register them in the usual manner.

January 1961 Our Biggest Issue

This issue of Wildlife in North Carolina will reach a total of more than 73,000 subscribers. A subscriptions sales campaign carried on by Commission personnel last fall brought circulation up to the present figure, making this magazine one of the top in the United States in circulation.

John O. Brown, Mecklenburg County wildlife protector, led the sales campaign with 1,216 subscriptions. A. Eugene Jones, wildlife patrolman, Siler City, was second with 1,080 subscriptions; J. D. McLean, Gaston County wildlife protector was third with a total of 795, and Leroy Bostic, Scotland County wildlife protector, sold 656. Business firms buying subscriptions as good will gifts for customers accounted for many of these sales. A total of 18,024 subscriptions were sold during the campaign.

Tarheel Seafood Cookery

The State Department of Conservation and Development and the Agricultural Extension Service have combined talents to publish one of the best seafood recipe books ever produced. There are over one hundred mouthwatering formulas ranging from Oysters Rockefeller to turtle soup to hush puppies, all using seafood from North Carolina's marine supermarket along 300 miles of waterfront. The book sells for 25¢ per copy, postpaid, and is available from Public Information Office, Department of Conservation and Development, Raleigh, N. C.

Every time you buy fishing tackle or sporting arms and ammunition, you help pay the bill for better hunting and fishing.

Goal: Better Hu

by

THIS is the story of the Federal Aid in Fish and Wildlife Restoration acts and the job they are doing for North Carolina sportsmen. The connection between Federal Aid and bagging a limit of doves or creeling a nice catch of trout seems rather remote to most people. Actually funds allocated to the states by the Federal government through the Pittman-Robertson and Dingell-Johnson Acts may make the difference between a good hunt or empty skies, fish in the pan or none.

The long, and at times tedious and involved, story goes back to the early 1930's. Drought was hitting waterfowl tremendous blows; farm practices were squeezing the living quarters of game species tighter and tighter; hunting intensity was rising fast. Public lands were poorly managed and inadequate in volume. Hunting seemed doomed unless proper financing of sound game management programs could be achieved.

Where was the money to come from? This question was one of the first and most pressing facing dedicated conservationists such as J. N. "Ding" Darling, Carl D. Shoemaker, and sportsmen-legislators, Senators Key Pittman of Nevada and A. Willis Robertson of Virginia. Proposals rose and fell including a $25,000,000 bond issue aimed at migratory bird restoration, a "cent-a-shell" tax for duck restoration, and the 1934 Duck Stamp Act (which, although passed into law, did not meet the critical needs of waterfowl).

Even the failures of many of these attempts to secure badly needed funds for game management inched the cause along. It is difficult to visualize the titanic struggle that went on—behind closed doors in legislative chambers and in crossroad stores across America.

In the early 1930's, there was a tax on the statute books of 10 percent (later increased to 11 percent) on the manufacture and sale of sporting arms and ammunition. The manufacturers paid this directly to the Federal government and it went into the general fund. In five years this amount grew from less than $900,000 to almost $3 million in 1938 and now is about $12 million annually. The proposal quickly arose, "Why not earmark these funds for game restoration, including land and water acquisition?"

The backlog for a specified number of years would go into an endowment institute which in turn would allocate it to the Biological Survey (one of the forerunners of the present Fish and Wildlife Service). Congressional approval was withheld and the proposal died. Its death spurred the formation of the National Wildlife Federation in 1936 and the battle continued to release the three million dollars paid by sportsmen when they purchased sporting arms.

After thirteen drafts, a bill was readied for introduction into Congress. The endorsement of the

The production of a fruitful hunt begins years before you turn the dogs loose. Federal Aid leads the way to improved sport.

necessary sponsors (including Senator Bailey of North Carolina, a devoted conservationist and member of the Special Committee on Wildlife) was quickly obtained and on June 20, 1937, the Senate received the bill. Legislative action was far from smooth but on September 2, 1937, President Roosevelt signed the bill and the Pittman-Robertson Act became law.

It is difficult to overestimate the importance of this legislation. Ira N. Gabrielson, president of the Wildlife Management Institute, in his book on wildlife management said that "this legislation has produced the first semblance of a national wildlife program in history . . ." and ". . . in fact, as time passes, it appears to be the most significant conservation legislation that has passed the Congress in many years."

Wildlife Milestone

It has meant almost the difference between game and none. The P-R Act is not the entire answer to bountiful supplies of wildlife, but it has brought new life to game management and has greatly furthered better hunting. Now every time an American hunter buys a gun or ammunition, he chips in to improve his sport. Thus he plays a direct part in sustaining and improving hunting.

Within the framework of the P-R Act is specified the exact procedure followed in apportioning the funds to the individual states. It requires that the distribution of these funds, (collected and held by the Treasury Department), "shall be made one-half in the ratio which the area of the State bears to the total area of all the States and one-half in the ratio which the number of paid hunting license holders of each State bears to the total number of paid hunting license holders of all the States." In other words, the larger the state and/or the more hunting licenses sold by it, the more Federal Aid money the state would receive. As we shall see with the Dingell-Johnson Act, the fish management parallel to the P-R Act, this apportionment is somewhat different.

The annual apportionment made to each state is "obligated" by the states in the form of approved projects (both P-R and D-J); the state pledges 25 percent of the total project cost, the federal government 75 percent. The funds are thus spent from state monies and then Uncle Sam is billed for reimbursement of the government's share, i. e. 75 percent. The total cost therefore must be available initially from state sources since reimbursement is at least one year after the actual expenditure.

Considering its natural parallel to game management's P-R Act, the tremendous need for it, and

ing and Fishing

ver

The Pittman-Robertson and Dingell-Johnson acts have had a profound effect in creating better hunting and fishing. This important article tells the story of the acts and describes the work they do in North Carolina.

The travels of this tagged bullhead were followed during a Federal Aid project. Game fish are also studied in this manner.

What fish are in the lake or sound? Nets such as these help provide the answers. This winter scene is on Currituck Sound.

Photo by Jim Lee

The deer in the sights of this archer on a wildlife management area may be the result of a Federal Aid big game project.

the precedent established, the fisheries restoration bill known as the Dingell-Johnson Act had a belated and stormy career in Congress. The first bill was introduced by Congressman Frank Buck of California in May, 1939. Everything seemed ready to mesh beautifully for swift passage; the 10 percent tax on sport fishing tackle was already in existence, the requirements and procedures in the bill were essentially the same as in the Pittman-Robertson Act except that it applied to fisheries, and the need was evident. It failed repeatedly in Congress.

Dingell-Johnson Act

Fishing tackle manufacturers for some unexplainable reason could not agree on support for the measure. Violent opposition flared again and again. The more enlightened tackle men saw the need and stood fast in its support but it was not to succeed until 1950. Congressman John Dingell of Michigan introduced it in its present form. Senator Johnson of Colorado later introduced it in the Senate. Again everything seemed set.

President Truman vetoed the bill because of a Treasury Department opposition to "earmarked funds" and several other reasons. However, with a few slight word changes, and an exchange of correspondence between the White House and Congressman Dingell, the bill was signed and became effective July 1, 1950. Thus fisheries received the financial support needed to develop programs of fish management designed to keep pace with the skyrocketing fishing pressure.

The apportionment under the Dingell-Johnson Act is 40 percent on the basis of the total area of the state, and 60 percent on the basis of the number of paid fishing license holders in the state, rather than 50-50 in the case of P-R; otherwise the apportioning procedures are identical. It behooves a state to sell as many licenses as possible in order to receive larger federal allotments.

In order to be approved by the administrative agency, which is the Fish and Wildlife Service, both P-R and D-J projects must meet certain specific requirements. Approvable projects include investigation and research into problems of fish or game management, land acquisition, and development such as access area construction, habitat im-

provement, and operation of managed hunts. Not approvable are activities directly involving law enforcement and public relations. The construction of fish hatcheries is also unapprovable. However, the production of fish used exclusively for experimental or research stocking is an approvable expense.

Some workers in state conservation organizations feel that the restrictions placed on Federal Aid projects by the Fish and Wildlife Service limit them unduly and work hardships on state procedures. This is, for the most part, totally unfounded and in reality the procedures set up for projects insure their most efficient operation and get the "most for the money."

The North Carolina Wildlife Resources Commission has incorporated the P-R and D-J activities into its program and thereby set into motion a most powerful machine working toward better hunting and fishing. It is difficult to find a single area in the program of both the Game and Fish divisions that has not been benefited by Federal Aid. Measured in manpower alone, the Fish Division has 17 of its total of 36 employees paid from Federal Aid funds; of the Game Division's total force of 54, 48 are paid wholly or in part from Federal Aid funds. Measured in results—better hunting and fishing—the picture is just as dramatic.

Important Results

It is difficult, and a little frightening, to visualize our present fish and game management operations without Federal Aid funds. Trout stocking would be done blindly at best without the intensive trout research on the Wildlife Commission's cooperative management areas which is supported by D-J funds. Upland game would still be struggling to maintain a foothold on unmanaged land. Warm-water fish habitats would be totally without management guidance. Deer, bear, turkey, waterfowl—all would be left with seriously restricted restoration programs. Fishing and hunting regulations would be based on theory, hearsay, and guess-work. The picture would be a dark one indeed for North Carolina's fish and game.

Results in wildlife management come slowly even with a well-run, precision-operated program. It's a long-range enterprise which often creates impatience in some of us. Viewed over the "long haul" however, we can point to successes and gains despite increasing hunting and fishing pressures and dwindling game habitat and clean waters. The goal remains the same, better hunting and fishing. And Federal Aid plays a most important part in this task.

Photos by Jack Dermid

A well-managed deer population means animals that are in good condition. Here biologists carefully weigh a fat deer taken on a wildlife management area. Success in harvesting the game crop is the ultimate goal of Federal Aid programs in North Carolina.

Free, public access to the waters of the state took a great stride forward with the purchase and development of fishing access areas under Federal Aid. North Carolina now has 53 access areas open to fishing and boating enthusiasts. More are planned.

Photo by Jim Lee

Once facing the threat of extinction in North Carolina, the otter has made a comeback and today produces valuable pelts.

The Otter Is

Nature's Playboy

by Kenneth A. Wilson
Fur Resources Biologist

The otter is a sleek, elongated package of muscular energy with brains and disposition to match. Here is his story.

AS he reached the bend in the river, the hunter paused again to listen to the sounds of the forest and streams. Suddenly, above the whisper of the water beside him, he heard from up the river a distinct chuckle, followed by the splash of a large object hitting the water.

Moving as quietly as possible through the winter leaves the hunter crept to a vantage point where he could observe the source of the sounds. Half expecting to find a mad fiend throwing bodies into the water, he was greeted with a rare sight—a pair of otter, gleefully sliding down a muddy clay bank into the icy water.

Sleek bodies glistening, they returned again and again to the slide, a slick trough in the mud worn smooth by the playing otter. Chuckling and chirping with pleasure, the unique animals seemed unaware that the water in their swimming hole was near freezing.

Early settlers trapped otter in every part of what is now North Carolina. The warm pelts provided clothing in cold weather, and their market value provided much-needed cash. For several centuries otters remained relatively common, but with the clearing of forests, increasing agriculture, stream pollution and increasingly higher market prices, the number and distribution of these interesting animals became greatly reduced. There was danger of extinction. From 1938 to 1946 the otter was given complete protection in North Carolina, and

many biologists believe that this action saved this animal as a now important source of fur income.

Found Mostly in the Coastal Plain

About 95 percent of the existing otter population is found in the coastal area of the state, with the remainder scattered through the Piedmont counties in the Yadkin River watershed.

Despite considerable hunting and trapping, the otter is common in many coastal counties. Fur dealers' reports for a 13-year period (1947-1960) show that 13,890 otters were pelted, an average of about 1,068 pelts per year. In the 1954-55 trapping season a record 1,514 otters were trapped. The destructive hurricanes of 1955 reduced the harvest to 687, the smallest in the 13-year period. Since then, however, populations have built up to the point where 1,337 pelts were taken in the 1959-60 trapping season.

Tarheel otter pelts rank among the best in the country where quality is concerned. During the last thirteen years pelt prices have ranged from $12 to $22. Last season's harvest paid trappers a total of $26,740 for an average of $20 per pelt.

A Way of Life

The otter is a large, elongated muscular animal with rich pale to dark brown fur. The ears are short and inconspicuous, the legs short; the feet are webbed and the tail is long and tapering. This combination makes the otter a spectacular swimmer. One hundred females trapped in coastal counties ranged in weight from 8 to 23¼ pounds, averaging 15¼ pounds. Of 138 males weighed, the smallest was 7¼ pounds and the largest 31 pounds for an average of a little more than 18 pounds. Otters swim in an undulating fashion at the surface of water at times, and at a distance a pair of them, one following the other, resemble a huge water snake.

The otter is a large furbearer, with females averaging about 15 pounds in weight, males 18 pounds. With trim body, small ears, and webbed feet, the otter is adapted for life in water.

Photo by Jim Lee

Observations in North Carolina indicate that mating occurs in the wintertime, usually in January, but observations in New York show that they mate in the spring. The mating act may occur either on land or in the water. Otters have only one litter of young per year, and estimates of the gestation period vary from about nine to twelve months in northern states. W. J. Hamilton, Professor of Zoology, Cornell University believes the period in New York to be more than nine months. In North Carolina, the author observed agate-size embryos from females trapped in January. Specimens trapped in February had embryos four to six inches long.

Tarheel otters are born in March and April, apparently about 60 to 70 days after mating. Litters average about three, varying from two to four under ordinary circumstances. The cubs are blind at birth, helpless, hairless and toothless. Their home may be a den under the roots of a stream-bank tree, a hollow log or the vacated, grass-lined lodge of a muskrat or beaver. The eyes open after about 35 days.

The otter leaves a distinctive trail when he crosses sandbars and mudflats. Tracks resemble those of mink but are larger. About 95 percent of Tarheel otters occur in the Coastal Plain.

Photo by Kenneth A. Wilson

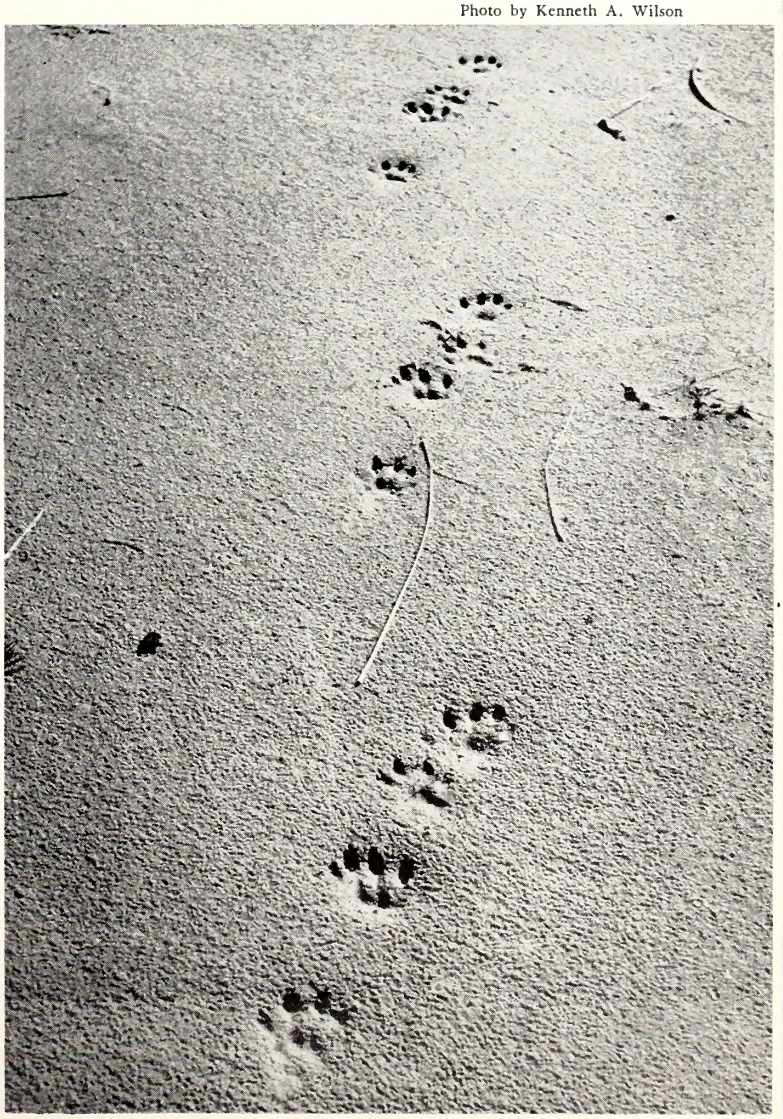


Photo by Jack Dermid

Besides tracks and slides, otters leave conspicuous toilets that represent many days of use. The droppings, such as these containing crab remains, give biologists clues to food habits.

After about seven weeks the young are gradually weaned from mother's milk to fish and other solid foods. When the youngsters are about ten or twelve weeks old the mother patiently begins the job of teaching her brood to swim. This is somewhat surprising, considering that the otter is inherently a water-loving animal. The male parent has little to do with family life. His mate does not allow him to come near the youngsters until they are about five months old.

By fall, parents and young are united into a family group, traveling and playing together. One of their favorite games is sliding down steep banks on their stomachs. Another is playing tag in the water. In December the family go their separate ways, the young left to fend for themselves.

Outwitting Most Enemies

Except for man and an occasional accidental encounter with an alligator, otters are clever enough and strong enough to elude or outwit most potential enemies. Occasionally dogs dig out an otter den and destroy the young, but woe betide any dog who encounters a full-grown otter!

Very little is known regarding the effects of disease or parasites on otter populations. Following Hurricane Hazel in 1955, however, the carcasses of several dead otters were found in Currituck, Dare and other coastal counties. At the same time millions of fish had died, some of which were eaten by otters. It is believed that these otters, and other undiscovered casualties, were victims of disease or parasites.

Otters will not tolerate severe pollution, and this factor has slowed the advance of otter populations in the Piedmont and mountain sections of the state.

A Gourmet, If Not a Glutton

Where seafood is concerned, the otter is a gourmet, if not a glutton.

Fish, easily outswum and captured by otters, are the favored item on the menu. They are fond of crayfish and crabs, but sometimes birds and small mammals are taken. A food habits study of otters in Currituck County showed fish to comprise 90 percent of the diet, largely such rough fish as carp, suckers, catfish and occasional sunfish. A few specimens had eaten large quantities of crayfish. Minor items were clams, shrimp, birds (mostly king rail), water beetles and muskrat.

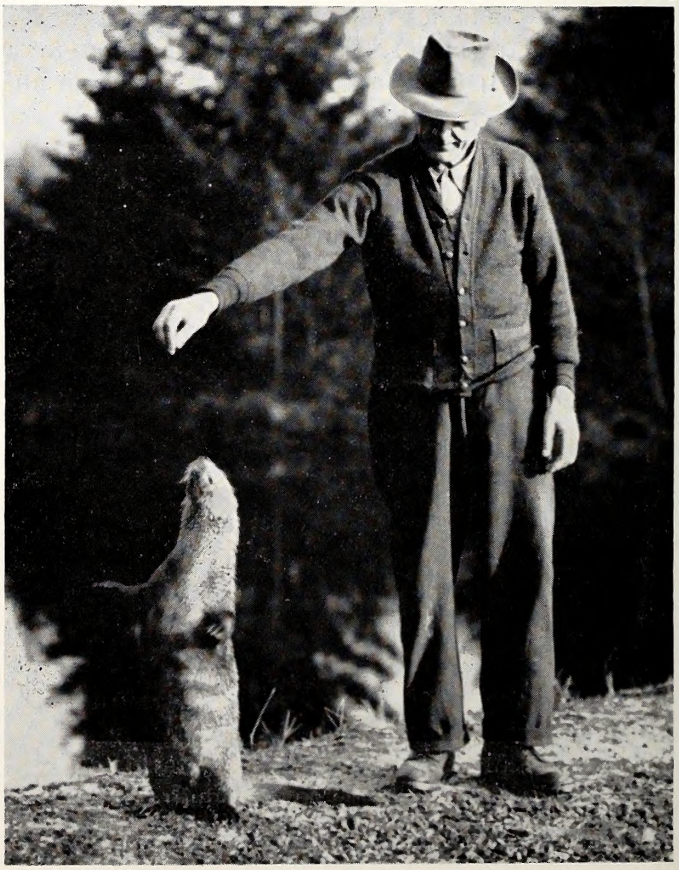
Additional studies on the Pea Island National Wildlife Refuge revealed that the common blue crab is the favorite item of food, due largely to greater availability. Where otters frequent farm ponds they feed largely on fish, doing more good than harm since most ponds are overpopulated with undersized fish.

A Restricted Harvest Is Necessary

Very little can be done in the field of otter management. Where they occur in important numbers they enjoy an almost ideal habitat. A restricted harvest is necessary and beneficial, giving the animals a chance to carry on the process of replenishment. The trapping season can be adjusted to assure the most prime and valuable pelts. Stream pollution abatement would help to extend the otter range and thus increase the potential yield of valuable furs.

Otters have been known to make lively and intelligent pets. Management of the otter consists primarily of controlling the harvest and restoring his habitat through pollution abatement.

V. B. Scheffer, Fish and Wildlife Service



The Skipper

Conducted by Duane Raver

Ready For Winter?

EQUIPMENT that is well cared for can be your key to survival on the water. It is really amazing how much the average skipper relies on mistreated gear—equipment that his own life and the lives of his passengers depend on, when it actually takes such little care and attention to make sure your boat and motor are in top shape.

Take winterizing your boating equipment for example. It's possible that you simply don't have an "off season" for your boat; but the chances are that if you're like most of us, the old kicker stands out in the storeroom or garage or worse yet, in the basement for several months, just like it came off the boat. Then in the spring, the aggravating thing won't crank! The inability of the motor to operate correctly at the dock isn't half as bad as failure in the middle of nowhere. Prevention now may be worth many pounds of cure next season.

Moisture is the Culprit

Moisture in the engine, whether on the wiring or in the fuel system, is the cause of many breakdowns. Open the cowling of the outboard and expose it to the drying rays of the sun for a few hours first of all. Make sure it is dry.

Remove the vent and grease (or hypoid oil) plugs, allowing any water to drain out, then add enough prescribed lubricant before storage.

Remove the propeller, check it for dents or nicks. Clean the shaft and spread a light layer of gear lubricant over the surface including the threads. Check the shear pin, if there is one, and replace if cut or bent. Use a pin of shearing qualities, not hardened steel.

The remote gas tank should be emptied and dried thoroughly. Any sediment or rust should be rinsed out with clean gasoline. The carburetor and fuel line should be drained of all fuel and dried. Clean the fuel filter or screen.

Carefully remove the spark plugs and squirt a generous amount (two or three tablespoons) of clear lubricating oil into the cylinder chambers. Then turn the motor over several times by pulling the starter cord slowly. This will coat all working parts in the cylinder, as well as the crankcase, with a protective film of oil. Check the spark plugs and clean or replace them if necessary. In the spring, remove them again and wipe clean.

The surest way to make certain all of these things have been attended to properly is to take your motor to the dealer from whom you purchased it and tell him to winterize it.

The main thing about actual storage is that the motor be kept in the driest place possible. It helps to cover it so that dust and dirt won't settle on it.

Winter outboard maintenance by an expert will pay safety dividends next season. Have it done now before the spring rush.

U. S. Power Squadron Courses

Now is a fine time to further prepare yourself for next season's responsibilities as a skipper. There's no better place to learn small boat handling from stem to stern than in your local U. S. Power Squadron class. Check with your hometown marine dealer or boating club and enroll now for safer boating next spring.

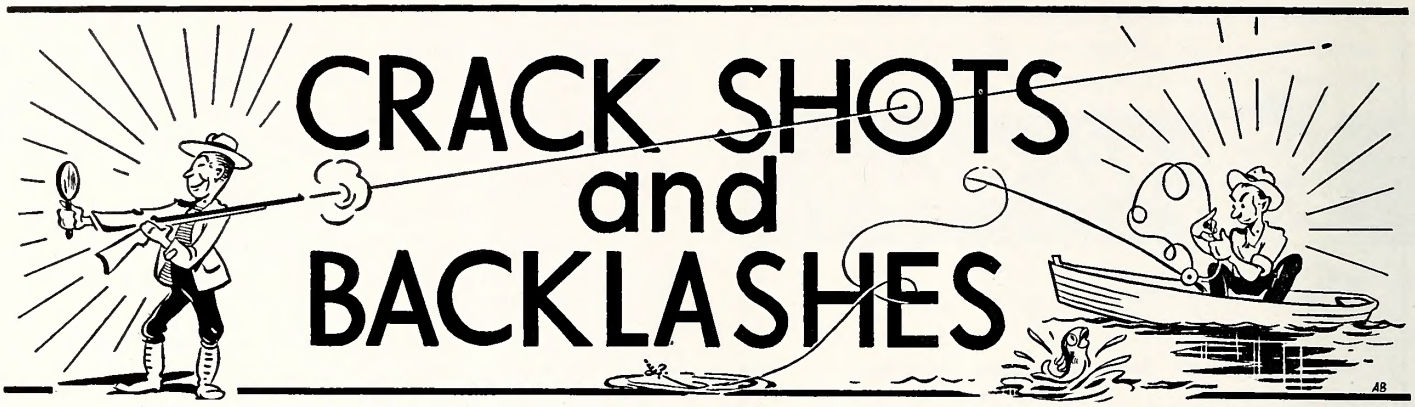
Question Box

Question: Last week I destroyed my numbered boat and bought a new one. Do I put the old number on my new boat?

Answer: No. You must make application for a new number for your new boat. You must notify the Wildlife Resources Commission within 15 days of the destruction of your boat so that the old number can be cancelled.

Question: What is the maximum horsepower allowable on a 14-foot boat?

Answer: The Boating Safety Act of 1959 sets no specifications for safe horsepower ratings for various boat lengths and models. Check with the boat manufacturer and follow his recommendations. Don't overpower your boat.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

The first month of the second year of a new decade might be a good time to do a little evaluating and retrospective thinking regarding our natural resources.

When you come right down to the facts there are only four natural resources that we can depend on using forever and ever—as long as we use them wisely by restoring what we use. These are our soil, our forests, our water and our wildlife. When all of our minerals have been dug up or pumped up and converted into cash they are gone.

A comparative evaluation of these renewable resources would have to show wildlife at the bottom of the list in total value. Once a vital source of human sustenance, game and fish have become a source of sport—healthy recreation and esthetic enjoyment. Compared to woodlands and soil, the commercial utilization of wildlife is almost nil.

Wildlife a Beneficiary

The first half of the Twentieth Century has seen tremendous progress made in the conservation of our soils and our forests. Even the most exploitation-minded industrialists have come to realize that trees are a crop. They cannot be harvested unless they are planted. Forests cannot be utilized unless they are well managed. And good forest management directly benefits fish and game.

Only a pathetically thin layer of top soil stands between the existance or oblivion of the human race. We have learned, slowly and painfully, that it is absolutely vital to keep our top soil on the land where it can produce life's essentials. Soil conservation, or good land management, is essential to the production of waterfowl and upland game.

It was not until within the past decade that this nation awakened to the apalling manner in which our most vital resource, water, has been abused. We used to concern ourselves, occasionally, with the simple concept of water quantity. We had either too little water or too much of it, both extremely inconvenient situations. Now, with total water consumption adding up to billions of tons, we are beginning to understand a little about a new concept—water *quality*.

Land given the care it deserves is a beautiful sight, one that produces wildlife.

Nature has a wonderful economy with regard to water distribution. The weather brings water from the sea, distills it and lets it fall on thirsty land at a rate of cubic miles per year. Meanwhile thirsty cities, towns and factories convert much of this seemingly unlimited supply into sewage at a fantastically increasing rate. Progress is being made in water conservation, but much, much more must be made. As a state and a nation we face a choice between crystal pure ground water and streams and cesspools and running sewers. Our fish and much of our game will prosper or suffer accordingly.

A Brighter Future?

How can the need for conserving our renewable resources be brought more forcefully to public attention? One way, perhaps, is to appeal to the inherent love of humanity for the wild denizens of the forests and fields and waters. A deer bounding across the highway in the headlights of your car is more dramatic than the well-managed forests on either side of the road that make it possible for the deer to live there. A covey of quail bursting from a covert is much more dramatic than the contoured field and the soil erosion control plantings that provide the birds with a home. A bass rising to take a lure from the surface of a placid stream is much more exciting than the sewage disposal plant a few miles upstream that makes it possible for the fish to exist.

The things we do to manage wisely our soil, forests and waters cannot do otherwise than benefit our wildlife.

Cooperation Is Essential

North Carolina has made excellent progress in the conservation of renewable natural resources. For more than a decade we have had a sound, progressive and effective wildlife conservation program. In its responsibility to the people of the state the Wildlife Resources Commission must share much credit for success with other

related agencies that have given such splendid cooperation. The Division of Forestry of the Department of Conservation and Development, and the U. S. Forest Service have been helpful in the management of woodlands on wildlife management areas throughout the state as well as on privately-owned timber land. The Soil Conservation Service and the Extension Service have cooperated in giving North Carolina one of the best farm game management programs in the country. The Department of Water Resources, a comparatively new agency, has been of tremendous value in pollution curtailment and in helping to assure that wildlife-recreational interests are protected on new and proposed water impoundments. The U. S. Fish and Wildlife Service has carried on a waterfowl management program, and supplied fish to thousands of farm ponds.

With this kind of cooperation and teamwork, the future of renewable natural resources in North Carolina never looked brighter.

Like people, wild birds and animals have fatal accidents. William R. Kiser of Chapel Hill sent in this picture of a bunny who met his fate by trying to dash through a fence hole that was too small.

Step-up in Delivery

There is a conspicuous, almost painful absence of letters from our readers this month. The reason is that your editors have stepped up deadlines and production so that your magazine will reach you earlier than in the past. This meant that back in November, when the speed-up process began, "Crackshots" was written before letters came in from readers of the November issue. We hadn't even heard from good friend Lucretia Plymph.

Please keep those letters coming in. We enjoy them (mostly) and enjoy passing them along to other readers. Besides, it means less writing for us. Ed.

Food or Cash?

J. N. (Ding) Darling, famous cartoonist and conservationist, once did a cartoon showing huge earth-moving equipment shoveling up forests, farms, and marshlands. The caption of the cartoon read. "When all of our natural resources are converted to cash, what are we going to eat?"

The following bit is taken from a recent national advertisement by the Caterpillar Tractor Company:

"Robert is six months old. When he is sixteen years our nation must have tens of thousands of miles of new highways, almost double our present water supply, doubled our school facilities, 20 million new homes, 20 percent of our present housing rebuilt, two and one-half times more oil, 60 percent more lumber production and double today's pulpwood production, 55 percent more metal ores, soil conservation on 1,159,000,000 acres, 123,300 new dams, many miles of levees, double our present hospital facilities, triple our electric power."

Wonder what happens to our fish and game while this is going on?—Ed.

Book Review

BIRDS OF NORTH CAROLINA. By T. Gilbert Pearson, C. S. Brimley, and H. H. Brimley. Revised by Harry T. Davis and David L. Wray. North Carolina State Museum, Raleigh, 1960. Cloth, 463 pages, 47 full-page plates. $5.00 postpaid.

"The earliest record of an ornithological observation in North Carolina is that of Captain Barlow, who in company with his associate, Captain Amadas, visited the coast in 1584." Thus begins the new, revised *Birds of North Carolina,* which now brings us up-to-date on the birds of our State.

The book, 463 pages, has 47 full-page plates, 24 in color and 23 in black and white. With the text figures all the different birds, 408 species, are well pictured or described for identification work. The volume provides an easy reference for identifying unfamiliar birds seen around the home or to carry while vacationing in other areas of the State.

Each bird recorded gives the common name, scientific name, A.O.U. number, plate number, a description of the bird, its natural range, range in North Carolina, and a written account of the bird and its activities followed by additional information compiled since the 1942 printing.

Birds of North Carolina has been revised by Harry T. Davis, director, State Museum of Natural History, in collaboration with Dr. David L. Wray, entomologist, North Carolina Department of Agriculture. New additions to the text are printed in distinctive type and are easily recognized.

Orders for this most interesting and worthwhile book should be sent to Museum Extension Fund, North Carolina State Museum, Box 2281, Raleigh, N. C. The price is only $5.00 postpaid—*Bill Hamnett*

Hunting By Permission

The poster pictured here is probably one of the most popular of its kind ever devised. These posters have been distributed free of charge to Tarheel farmers who are willing to allow hunting on their land if people will do them the courtesy of asking permission.

Woodrow Luther, who does poster and pamphlet printing at the Wildlife Resources Commission, says he wouldn't want to even

During the past ten years, the Commission has printed and distributed more than a million "Hunting by Permission" signs.

PROTECTOR OF THE MONTH

L. C. Spain

L. C. Spain was born on November 16, 1924 in Pitt County, near Greenville, and was graduated from the Belvoir-Faulkland Consolidated High School. He enlisted in the U. S. Navy in 1943, and served in both the European and Pacific theaters of World War II. He received an honorable discharge in 1946, and returned to Pitt County, where he farmed until July, 1953, at which time he was appointed Beaufort County Wildlife Protector. In addition to this, Spain is Commander of Darrell W. Hamilton American Legion Post No. 279, a member of the Aurora Voluntary Firemen's Association, and he is Assistant Scoutmaster of Troop No. 22 of the Boy Scouts of America.

Spain is married to the former Helen Copeland of Stokes, and they have one daughter, Cherry Lynn. They reside in Aurora, and attend the Aurora Methodist Church.

ENFORCEMENT RECORD FOR OCTOBER

HUNTING & FISHING:	
Persons checked	29,133
Total prosecutions	589
Total convictions	544
Total cases not guilty	14
Total cases nol prossed	10
Total cases dismissed	21
Total fines collected	$6,199.75
Total costs collected	$3,873.95
BOATING:	
Boats checked	990
Total prosecutions	89
Total convictions	85
Total cases not guilty	1
Total cases nol prossed	3
Total fines collected	$280.00
Total costs collected	$589.15

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

make a guess as to how many have been run off, but he is sure that well over a million have been printed and distributed. Commission authorities believe that largely as a result of these posters, North Carolina's hunter-farmer relationship is one of the best in the country.

Notice to Waterfowl Hunters

Daniel H. Janzen, Director of the Bureau of Sport Fisheries and Wildlife has urged all waterfowl hunters who have received registration cards with the purchase of their Federal duck stamps to cooperate with the Fish and Wildlife Service by filling out and promptly returning the indicated portion of the form.

This year more than 1400 post offices throughout the country have been furnished with double postcard forms which are handed to purchasers of duck stamps at these particular post offices.

One-half of the card is to be filled out by the hunter and returned at once to the Bureau. The other half is to be retained as a "score card" on which the hunter can list the numbers and kinds of waterfowl which he bags during the coming season, and the number of days he hunted.

The chief purpose of the survey is to determine as accurately as possible the extent of the waterfowl hunting kill for the season in order that a proper balance between the harvest of these birds and the hunting regulations may continue to be maintained.

Available Publication

The Game Division has recently published *A Distributional List of the Recent Mammals of North Carolina* by Edward Ray Smith, John B. Funderburg, Jr., and Thomas L. Quay. The bulletin provides a complete and accurate list of all the species and sub-species of mammals now living or recently extinct in North Carolina, along with short notes on the distribution, relative abundance, and general habitat occurrence of each. Single copies may be obtained free from the Wildlife Resources Commission, Box 2919, Raleigh.

Lucretia's Way Up!

DEAR SIRS:

To help settle an argument, please tell me which trees are found above the timber line. LUCRETIA PLYMPH, WAKE FOREST.

You really shouldn't get into arguments like this, Lucretia. We know of only two species of trees above the timber line. These are shoe trees in tourists' luggage, and hall trees being shipped via air freight high above the timber line.

So They Were Just Sleeping

DEAR SIRS: As usual, your October issue rang the bell. It was a fine job, but it did shake me up a little.

My first jolt came when I hit page 13 and saw that someone had scragged a hound in addition to a buck. The second jolt came on page 23 when I saw two hunters who had just dropped each other.

I read the cutlines, but my nerves are shot, anyway. JOHN MADSON, CHIEF, INFORMATION SERVICE, OLIN MATHIESON CHEMICAL CORPORATION, EAST ALTON, ILLINOIS

We suggest, John, that to soothe your nerves you should come to North Carolina for a hunting trip. There is nothing like pleasant physical exhaustion to calm shattered nerves.—Ed.

Handguns Not Legal For Game

DEAR SIRS: A recent article appearing in a sportmen's periodical was concerned with hunting small game by means of small caliber handguns as opposed to the small-bore rifle. It was proposed that the former gun required more skill to use effectively, and hence, provided more real sport and challange.

Because I have been a handgun target shooter for some time, as well as an avid hunter, would you please advise me on the rules and regulations of taking game with handguns in North Carolina. THOMAS C. BRAY, RALEIGH

The rules and regulations regarding your question are specific. The following is quoted from the general statutes of North Carolina: "113-104. Manner of taking game: . . . Games birds and game animals shall be taken only in the daytime, between sunrise and sun-

The numbered aluminum band being placed on the leg of this dove is an important tool in the management of migratory species, but its value is nil unless it is returned at a future date to the Bird Banding Office, Fish and Wildlife Service, Laurel, Maryland. Sportsmen are urged to do their part in research by returning all bands.

set with a *shotgun* not larger than number ten (10) gauge, or a *rifle*, or with *bow* having minimum pull of forty-five (45) pounds and non-poisonous, non-barbed, non-explosive arrow . . ."

Hence, handguns are not permitted for taking game. They may, however, be used for taking unprotected species.

Fisherman's Prayer Available

DEAR SIRS: I would like to obtain five copies of "A Fisherman's Prayer" which was printed on the back of the July 1960 issue of your publication. I plan to have the prayer framed and to use as Christmas gifts.

Incidentally, I received your magazine as a gift last Christmas, from Mr. Leon M. Pearsall of Charlotte, and am enjoying each copy to the fullest.

Thank you for your cooperation. CLIFFORD E. CHAMBERLAIN, MOBILE, ALABAMA

Copies of "The Prayer" are available from The Graphic Press, Raleigh, on the finest quality paper for mounting. The price is fifty cents per copy, postpaid.

TEN COMMANDMENTS OF HUNTING

I. Thou shalt not employ others to kill thy game for thee, nor covet game killed by others.

II. Thou shalt speak to the farm owner of the land in a gentle grace, and kindly entreat him to let thee hunt on said premises, lest he boot thee north and from his domain.

III. Point not thy gun toward any living thing that thou dost not wish to kill. Lo, there are fools and idiots wandering to and fro on the earth, but he who fails to observe this rule is verily the King Imbecile.

IV. Shoot not thy gun toward any cattle, swine, or farm livestock within one-fourth mile of thee. If thou shalt disobey this, the farmer will jab thy pants with his pitchfork till thou roarest for help, and thereafter thou must eat thy meals standing.

V. Unload thy gun before thou enterest an automobile. Then may thy days be long and thy funeral postponed.

VI. Take not thy gun by the muzzle to draw it toward thee. Verily, some foolish human may love thee, and why shouldest thou die?

VII. Look not into the muzzle of thy gun whether it be loaded or empty. An empty gun shooteth out an inquiring eye, and the undertaker groweth rich thereby.

VIII. Thou shalt not carry thy gun cocked. Thou art a mighty hunter, but the hides of thy friends will not turn shot.

IX. Climb not fences with thy gun in thy hands. Put thy gun through first with the muzzle pointing away from thee and all living things. Better to miss a chance at one crow than to return to thy house with guilt in thy heart and thy friend's hind leg in a basket.

X. All these rules thou shalt obey and live past three score and ten. If thou failest, thou shalt sleep in thy coffin or in thy prison cell while the mourners go about the streets.

The above commandments were dug up by Jim Gant, wildlife protector in Haywood County, published in Al Germonte's outdoor column in the Asheville Citizen, and passed on to us by Jim Reeves of the Buncombe County Wildlife Club.

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WEED STRIPS LEFT ALONG FENCES FOR NESTING WILL INCREASE NUMBERS.

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PLANT SERICEA AND SHRUB LESPEDEZA TO IMPROVE QUAIL HABITAT. WRITE GAME DIVISION, WILDLIFE COMMISSION. RALEIGH, FOR INFORMATION ON THIS.

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N.C.
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Wildlife in north carolina

ten cents

february 1961

Photographed at Gaddy's Pond by Jack Dermid

Wild Beauty

When it comes to beauty, the drake wood duck is well endowed. He sports iridescent plumage that changes color as the light changes, bold white markings, red eyes, and a bushy topknot that set him apart from all other American waterfowl. Here is a bird that is a challenge to hunt and a real joy to watch as he cavorts about on a secluded woodland pool—a bird that contributes greatly to our wildlife heritage. The wood duck deserves all the help he can get to perpetuate his kind, and one way to give him a boost is to erect nesting boxes where hollow trees are scarce. Free house plans and complete erection details can be obtained from the Wildlife Resources Commission.

State of North Carolina

TERRY SANFORD
Governor

North Carolina Wildlife Resources Commission

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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

The happy groundhog on our February cover reflects the feelings of all who love the out-of-doors. With snow still on the ground in parts of North Carolina, a few warm days now and then remind us that spring isn't far away. With all the promise of swelling buds and balmy days ahead, perhaps our jaunty woodchuck, or groundhog, is quite justified in his happy grin. Cover painting by artist Roy Wills. For more information about this famous symbol of the month of February, see the interesting article that appears on page 8 of this issue.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

The Weakest Link

by Donald J. Hankla

Illustrations by Wallace Hughes

The number of quail the land can carry or support through the year is determined by the amount of available food and cover. This year-round food and cover chain has several weak links. This important article discusses these weak lengths, and recommends some measures that you can use to strengthen them.

"A chain is no stronger than the weakest link." The truth stated in this familiar proverb is as pertinent in its application to the life of the bobwhite quail as it is to a chain made of steel. This strange comparison becomes more vivid when one recalls that the quality of the steel from which the chain links are made affects the strength of the chain and hence its life.

In a like manner, the quality of food and cover that is available to the bobwhite has a great influence on his welfare and hence his life. Let us review briefly the year-round habits of the bobwhite and see why food and cover are so very important.

September and October—Months of Leisure

September and October are months of leisure and plenty for the bobwhite. Most plants have completed their growing cycle and seeds and fruits are available in great abundance. Insects are also present in great numbers. Leaves still remain on many plants and there is an abundance of cover. The bobwhite has little trouble in filling his crop and spends most of his time loafing, dusting, and preening his feathers. This is the one time of the year when food and cover are not problems and living conditions could hardly be better.

November and December come and with them comes the frost. Leaves drop to the ground, leaving only bare stems as relics of once dense plant communities. Sparse weed fields which once furnished good protective cover against the natural enemies of the quail can no longer be relied upon. Weed seeds which were once available nearly everywhere have now begun to deteriorate and are being covered by leaves dropping to the ground. Insects which only a month before had been hopping and crawling about have now crawled into the ground for the winter or have been killed by the icy frosts.

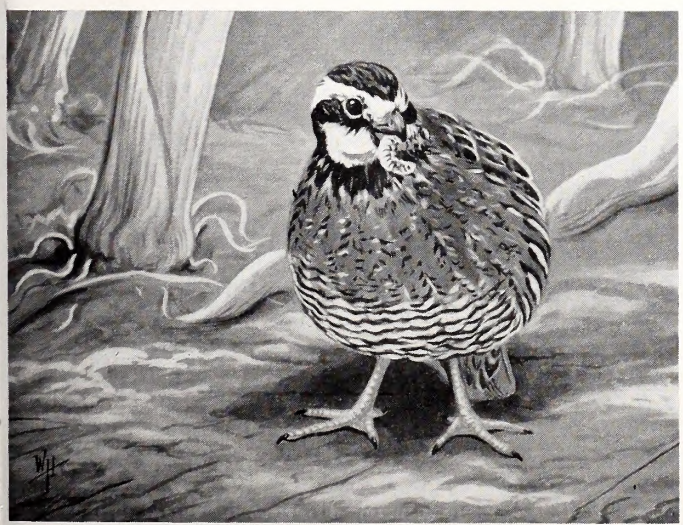
Frost has caused the seemingly Utopian world of the bobwhite to crumble and fall. No longer are family broods secure on open farm lands and they begin to shift about in search of a better supply of food and denser cover. This shifting about is often referred to as the "fall shuffle." During this period of shuffling and shifting, families often encounter other families and usually join together into a larger group called a covey, which may number between 20 and 30 birds. The covey then travels as a unit and adjusts its activities to what food and cover are available.

Following the passing of several cool nights and a few more frosts the hunting season begins. The covey encounters hunters for the first time and a few birds crumple in mid-air in their attempt to escape. After a couple of unfriendly encounters of this nature, the birds become educated and try to outwit the hunter by every means at their disposal. If there is cover nearby that is more dense they will move and set up their headquarters there. They have even been known to change the time of day during which they feed in an effort to avoid harassment by hunters.

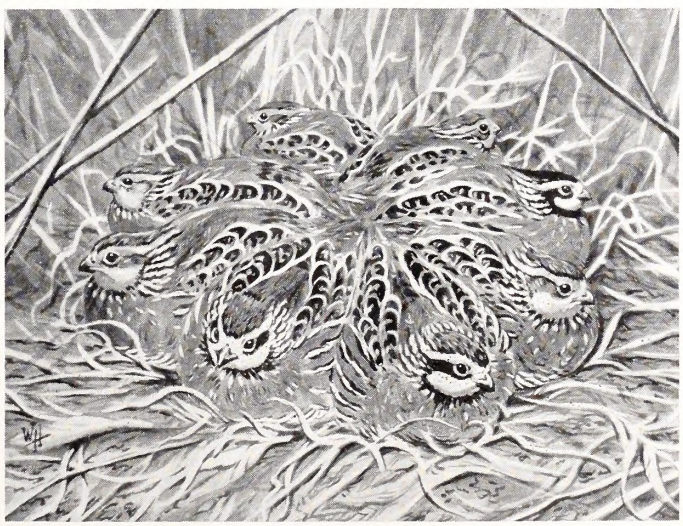
Food Becomes a Problem

During late December and January the weather becomes more severe and the scarcity of food becomes a real problem. Weed seeds have nearly disappeared from the scene, acorn and pine mast have been consumed by squirrels and other animals. All that remain are the seeds of legumes. Such seeds contain large amounts of protein and are relished by the bobwhite. However, they are not overly abundant and before winter passes these seeds become very hard to find. During this period quail also feed on the fruits of poison ivy and sumac and the fruits and leaves of honeysuckle.

The carrying capacity, or the number of quail that the habitat will support, is lowest during February and March. It is during this time that quail stuff themselves on almost any food that they can



Insects are very important in the diet of the bobwhite during the spring, summer and fall months. Each bird is a valuable asset to the farmer because of harmful insects that he eats.



When cold nights of autumn arrive, quail gather together in coveys, often spending the hours of darkness huddled in a ring. The coming of the first frost spells the end of easy living.

find. Often the food is of an inferior nature and some of the birds become considerably weakened. Many of these no longer have the strength to withstand disease and escape from predators and are lost.

It should be realized at this point in this brief life story of the quail that nearly all losses except those from hunting are directly influenced by the quality and quantity of the food and cover that is available. If plenty of food is available in close proximity to good cover, losses due to disease, parasites, predation, starvation, and accidents will be at a minimum. Under these circumstances the carry-over into the breeding season will be high and the chances of a high fall population are improved.

Warm Spring Days Arouse the Mating Instinct

The birds that were lucky enough to withstand the misfortunes of winter now begin to prepare for the nesting season. Foods high in protein, and green shoots and leaves with a high vitamin content, are needed by quail during this period so they will be in condition to lay larger clutches of fertile eggs. Warm spring days arouse the mating instinct in the bobwhite and courtship activities are soon begun.

The female bobwhite, shown here nesting under a multiflora rose hedge, requires safe cover for her clutch. Hedges of multiflora rose provide protection for nesting small game.

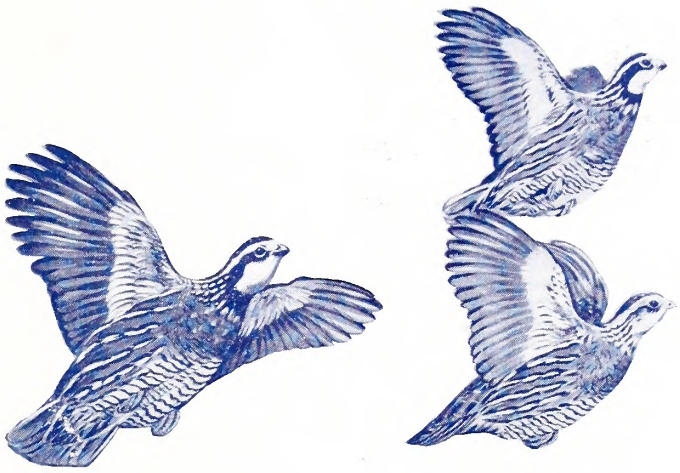
By early April many of the birds have paired off and broken away from the covey. When this occurs they move away from their winter homes to open farm lands in search of a place to nest and rear their young. It is during this time of year that quail lose much of their wariness and many are lost in accidents on farm roads and highways, and to stray house cats.

The first nests are begun at a time when spring plants have not made sufficient growth to furnish the desired nest building materials, thus it is necessary that the quail use grasses and weeds that grew during the previous year. The average clutch contains about 14 eggs and 23 days are required for incubation.

During the nesting season and especially during incubation, the hen and the eggs are very vulnerable to predators. Skunks, snakes, crows, raccoons, cats, and dogs will not pass up the opportunity to break up a nest once they find it. It is for this reason

So strong is the reproductive instinct of the quail that if the nest is broken up by a predator, the female will renest. With each such attempt a smaller clutch of eggs is produced.

Parent birds teach their young the ways of the wild. The young learn to survive hardships and to escape enemies by reliance on natural and supplemental protective cover.



that the availability of nesting cover is thought to be very important. (The lack of suitable nesting cover is thought by many to be as serious a limiting factor in quail production as the availability of winter food and cover.)

The peak of hatching in North Carolina is usually in June. Should a nest be broken up by a predator, a flash flood, or for some other reason the pair will renest. Usually when this occurs the size of the clutch is smaller. Should the nest be broken up a second time the pair may attempt to renest a third or even a fourth time. The reproductive instinct in the quail is very strong—much more so than in such birds as the wild turkey. It is not uncommon to hear of a brood of young quail that have hatched as late as September.

Summertime, and the Living Is Easy

Usually by summer incubation is well underway or has been completed and full attention is given to rearing the young. Food is abundant and young birds make rapid growth. At two weeks of age they are able to fly short distances and are able to escape many free-ranging predators. By the end of three weeks, the young have learned to fly well enough that the entire brood together with the parents flush in a simultaneous action when disturbed.

Much time is spent during this period teaching the young the ways of the wild. They learn to freeze when a winged predator sails overhead or flush and scatter when a stray cat approaches. By the time they are eight weeks of age they are relatively secure, and by the time they reach 14 weeks of age they can not be distinguished from adult birds except by close examination of the wing plumage.

This brief life story of the bobwhite was intended to point out some of the "weak links" in the year-round habitat. It was noted that food and cover were generally abundant during September, October, and November. In December food began to get scarce, a condition that grew steadily worse through January and February, and tapered off some in late March. Cover was also of poor quality during this period. It was at this time of year that the carrying capacity of the land reached its lowest point.

In March and April nutritious foods needed to prepare the birds for the nesting season were scarce or non-existent. In May, mated pairs searched diligently in quest of cover in which to build nests.

What Can be Done?

What can sportsmen and farmers do to improve conditions for the bobwhite? Here are some suggestions that you can follow to better your hunting next year.

1. Plant patches of perennial legumes such as sericea and shrub lespedeza that will furnish a nutritious supply of food during the critical winter months. A combination planting of sericea and shrub lespedeza, one-fourth acre in size, will support a covey of quail through the winter and will lessen the danger of losses due to starvation, disease, and predators. The Wildlife Resources Commission will furnish plants and seeds free of charge to farmers and sportsmen to make such plantings.

2. Plant hedgerows of multiflora rose across crop fields to provide travel lanes that will encourage the bobwhite to feed along the edges of these fields in relative safety. These hedgerows are living fences that require little maintenance and will last indefinitely. The Wildlife Resources Commission will furnish rose seedlings free of charge.

3. Leave strips of corn, soybeans, and lespedeza unharvested at the edge of fields so they will furnish a supply of food during the critical period of winter.

4. Refrain from burning hedgerows, open woodlands, and other grass and weedy areas so quail will utilize these areas for nesting.

If these practices are carried out the "weak links" in the bobwhite's chain of life will be strengthened and his future assured.

Instead of seeing his shadow, this groundhog spotted the remotely operated camera and flopped down in the entrance of his burrow. Big feet and long claws aid the groundhog in digging.

The groundhog or woodchuck is the only American mammal with

A Day Named In His Honor

A Nature Short by Jack Dermid

THE second day of February is not just an ordinary day, but a day when people throughout North Carolina and the nation will scan the skies in an effort to outguess the weatherman. Why? It's Groundhog Day.

The amateur forecasters will not be alone, for, according to legend, Mr. Groundhog himself will wake from a winter-long sleep, yawn several times, stretch, and then make his way through underground tunnels to the outside world. If the sun is shining and the groundhog sees his shadow, he will make a hasty retreat for six more weeks of slumber. But if the day is overcast, he will continue about his business, assured of an early spring.

Of course the groundhog is not a weather prophet, but the legend makes a fascinating story. And there is just enough truth in it to keep it alive. The groundhog does actually hibernate during the winter and makes an annual appearance each spring, some individuals coming out in early February before the end of cold weather. Then, too, during the winter months, clear skies usually mean low temperatures while cloudiness brings warmer days. The coincidence, spiced with time and folklore, has resulted in Groundhog Day.

The origin of Groundhog Day cannot be pinpointed to any date, place, or individual. The fanciful idea probably originated during Colonial times as a modification of the old European belief that a sunshiny Candlemas Day (also February 2) means six cold weeks ahead. In Old World folklore, it is the badger that comes out to look for his shadow. But regardless of origin or truthfulness, Groundhog Day has become an American tradition, and according to Ernest Thompson Seton, a famous naturalist, "... our lives and literature would be richer if we had more of such."

Many people of eastern and central North Carolina who are aware of Groundhog Day, perhaps, have never seen the curious little mammal, for the

groundhog is a creature of more northern climes. An extension of his widespread range dips southward through the mountain counties of the State, and there the groundhog is a native Tarheel.

The groundhog, woodchuck or whistlepig as he is sometimes called, is the largest member of the squirrel family, but instead of being a trapeze artist, he is a master at digging burrows underground. He is a large, fat-bodied mammal with a short, flattened and furred tail, short ears, and a typical rodent face with gleaming front teeth. Comparable to the opossum in size, typical adults weigh between five and ten pounds.

As a rule, except during the breeding season, the groundhog is a solitary creature of woods borders, brushy hillsides, and pasturelands. There he digs a deep burrow for a home and seldom ventures far from the safety of one of the entrances. He does not suffer from wanderlust and, being almost wholly vegetarian, can find all the requirements of life at his doorsteps. He sometimes brings the wrath of farmers down on his shoulders by foraging in gardens or by digging burrows in pastures.

The groundhog is a cautious fellow. He will wait at the entrance of his burrow for minutes on end to be sure the coast is clear of foxes, dogs, or farmboys before venturing out. While feeding away from home, he frequently stands erect, freezes, listening and watching intently for danger. The slightest alarm will send him scurrying for cover. Once underground, the groundhog often sounds off with a whistle or two as if to mock his pursuers. Although preferring retreat to battle, a cornered chuck can wage a terrific fight, and many a dog bears scars as the result of an encounter with him.

A groundhog's life is a lazy one. About three-fourths of his time, including winter hibernation, is spent fast asleep. There is some work: the digging of burrows, chasing about the countryside during courtship, fleeing from enemies, and the raising of a family. The remaining hours awake are a monotonous routine of leisurely eating and basking in the sun.

The groundhog eats heartily during the warm months and stores up enough fat under his hide to keep him alive during his long winter sleep, which lasts from about October until March depending upon weather conditions. He is a true hibernator. Curled up in a tight ball, his pulse and breathing rate slow down to almost nothing and his body temperature tumbles to about 45 degrees. Now the groundhog can be dug from the ground and handled without being awakened.

One of the best places to see a groundhog in North Carolina is along the Blue Ridge Parkway. During your travels this spring and summer, look for this curious old hermit who was, by no accomplishment of his own, made famous by Groundhog Day.

SAFETY DEMANDS

Year Around GUN CARE

by W. L. Hamnett

WHAT are you going to do with your gun between the close of this season and the beginning of hunting next fall? Chances are you'll put it aside until the air begins to get nippy again —but where and how you store your gun is just as important as safe handling when you're in the field.

Here are some points to remember, that will benefit both you and your gun.

First of all, store your gun and your ammunition in separate places. A key principle of safe storage is that it should never be possible for someone such as an inquisitive child to get gun and ammunition at the same time.

The best place to keep your gun is a locked storage case. Second best is a gun rack, high enough to place a weapon out of easy reach. Many of us don't have storage cases or fancy gun racks, so often our shooting irons end up in hall closets. Standing a gun in the corner of a closet may be the convenient thing to do, but it will pay you to consider a gun rack for horizontal storage.

Nearly every hunter knows the first step in preparing his gun for summer storage. He knows that the gun should be thoroughly cleaned, the action lightly oiled, and a *light* coating of good gun grease swabbed into the barrel and over all metal parts. Trouble is, too many hunters figure that if a little oil is good, twice as much will be better.

Too much oil, and a gun stored standing up in a closet corner is a combination that will ruin your gun over a few seasons. Too much oil means that some will soon begin to flow from the barrel and action down over the pretty walnut stock—and the stock becomes soft and may become pitted very easily.

Gun manufacturers suggest that only a *light* coat of oil be applied. Not only will this preserve your stock but it will also mean that less household dust and grit will cling to the metal.

By storing the gun in a horizontal position there will be less chance of oil flowing down over the stock, and less accumulation of dust in the barrel.

Your gun should have as good off-season treatment as it gets during the season. By properly preparing it for storage, you'll find it in good operating condition when the hunting season opens in the fall.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Legislature Meets This Month

The 1961 General Assembly convenes this month, and is expected to have one of the busiest sessions in some time. Not the least on the legislative agenda will be bills pertaining to wildlife conservation and water safety. It is likely that consideration will be given to increased revenue for both of these activities.

Hunting Seasons Close February 15

The hunting season for rabbits, coons, possums, wild turkey and grouse comes to a close at sundown on February 15. Migratory game bird seasons and those on deer, bear and wild boar closed in January. Remaining for hunters after February were such non-game species as crows and groundhogs, with fox hunting permitted in some counties having local fox laws.

Reminder to Boat Owners—Be Careful

Owners of boats powered by machinery of more than ten horsepower are reminded that it is unlawful to operate such boats on the waters of the State unless they are registered and numbered as provided for by law. This involves renewing certificates for boats registered during the 1960 season, or making an initial registration for newly acquired boats.

During 1960 there were twenty-two fatalities in North Carolina directly involved in the use of boats. This mortality rate comes with a total of fewer than 39,000 boats registered, and should be given serious comparison with only eight hunting fatalities (1959 figure) out of nearly 400,000 licensed hunters.

Mountain Trout Stocking

About 634,000 keeping-size mountain trout are being readied for stocking in Tarheelia's designated mountain trout streams. The trout—brook, brown and rainbow, are being reared in both State and Federal hatcheries and will be distributed prior to and during the 1961 trout fishing season that opens April 1, 1961. The N. C. Wildlife Resources Commission and the U. S. Fish and Wildlife Service will cooperate in the trout stocking program.

ADVENTURES IN THE SNOW

Whenever a wild creature moves through the snow, he leaves a recording of his activities for the outdoorsman to read.

Cardinal. While a song sparrow searches the bottom of a hole. for food, a cardinal surveys the bleak, white world of winter. Their every movement in the snow is recorded for all to read.

Photo Feature by Jack Dermid

THERE are many pages in Nature's book—smooth sand, mudbars, bark, pathways, and more—where passing animals write a record of their activities. But the page that records the clearest story of all is a field of snow. Instead of a footprint here, a tail drag there, snow reveals the movements of wildlife during long periods of time. Trails may lead for miles in the case of large species such as deer or wild turkeys, perhaps only a few hundred yards for quail or rabbits, even less for woodland mice. But regardless of the length of the trail, if it is followed it will reveal interesting facts about the life history of its maker.

For example, the lonely trail of a fox wanders over the white countryside. The pace is monotonously steady until the trail nears a small holly in an old sawmill clearing where a rabbit had bedded down. The snow reveals the story: The rabbit flushed with the fox in hot pursuit, but the lucky cottontail reached the safety of a brier patch where he gave Br'er Fox the slip. Farther along, the wingprints of an owl show where their owner dined on a luckless mouse. The conspicuous trail of a beaver leads from the creekbank to a stand of young tuliptrees where toothmarks on bark give clues to food habits. A coon pauses to dig a long dead box turtle from under the snow. It was not to his taste; so he moves on.

These are but a few of the many things the outdoorsman can discover while following trails in the snow. Sometimes snow trails are clear cut and easy to identify; again they are meager and require detective work to decipher. But the greater the challenge, the greater the fascination. Many readers may profit by securing a copy of Olaus Murie's illustrated book, "A Field Guide to Animal Tracks," from their library or bookdealer before going afield. But when the snows come, forsake warm firesides for a few hours and enjoy the great outdoor adventure of tracking. Three pages of pictures follow.

Winter Trail. Let these footprints be yours when Nature blankets the out-of-doors with snow. Snow provides an unequaled opportunity for sportsmen to learn about the ways of wildlife.

Gray Squirrel. With winter winds blowing outside, a squirrel remains in his snug nesting box. Many mammals remain holed up in their dens during severe weather and best tracking is a day or more after the snow.

Rabbit Track. Every farm boy knows this cottontail's direction of travel. Do you? With paired hind feet forward and alternate front feet behind, the rabbit that made this typical track was hopping from left to right.

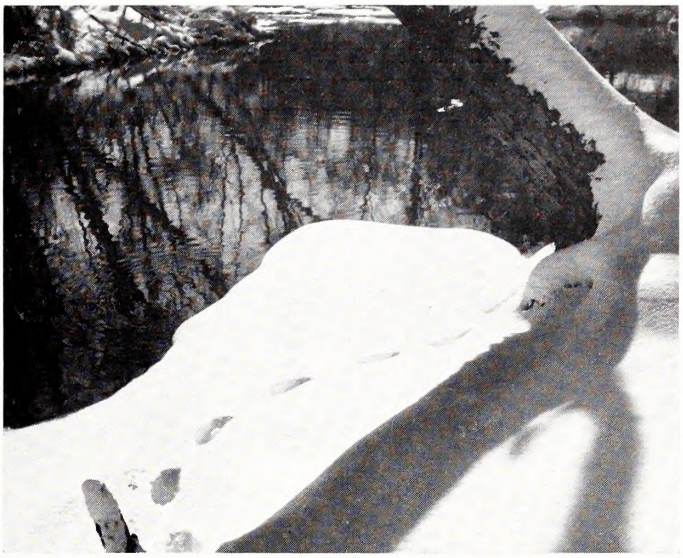
Crow. A crow lands in the snow, leaving a deep
where he first hits plus tail and wingprints. Bird s
distinctive and more difficult to identify than that of

ADVENTU

Animal signs provide b

management and show

Puzzle. What made this trail that disappears beneath the snow and out again? Near a river, the photographer guessed muskrat, but was not sure. Difficult trails add interest to tracking.



Mink. Not the footprints of a man, but each "track" is the impression made by the body of a mink as the mammal leaped from spot to spot in deep snow. Footprints were inside holes.

N THE SNOW

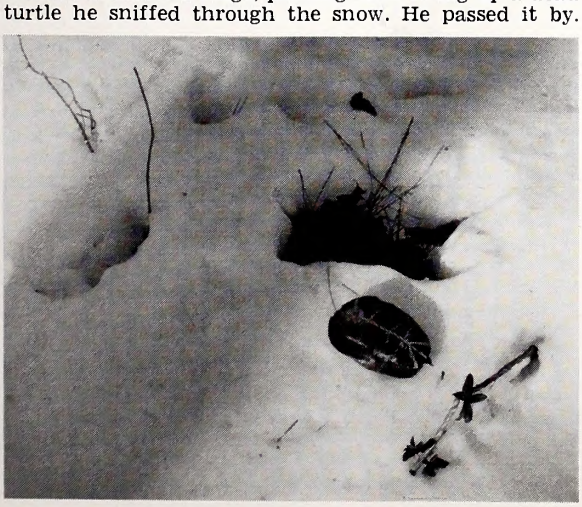
t with facts useful in wildlife

where to seek evasive trophies.

el Trail. Although similar to the rabbit's, the el's track is distinctive with both front and hind aired. The hind feet are forward, farther apart.

Raccoon. Can't you see the look on Br'er Coon's face as he skidded on pond ice. A dusting of snow on ice makes a sensitive film that records the most delicate of marks.

Sensitive Nose. After slipping on the pond, the coon wandered across a ridge, pausing once to dig up a dead turtle he sniffed through the snow. He passed it by.



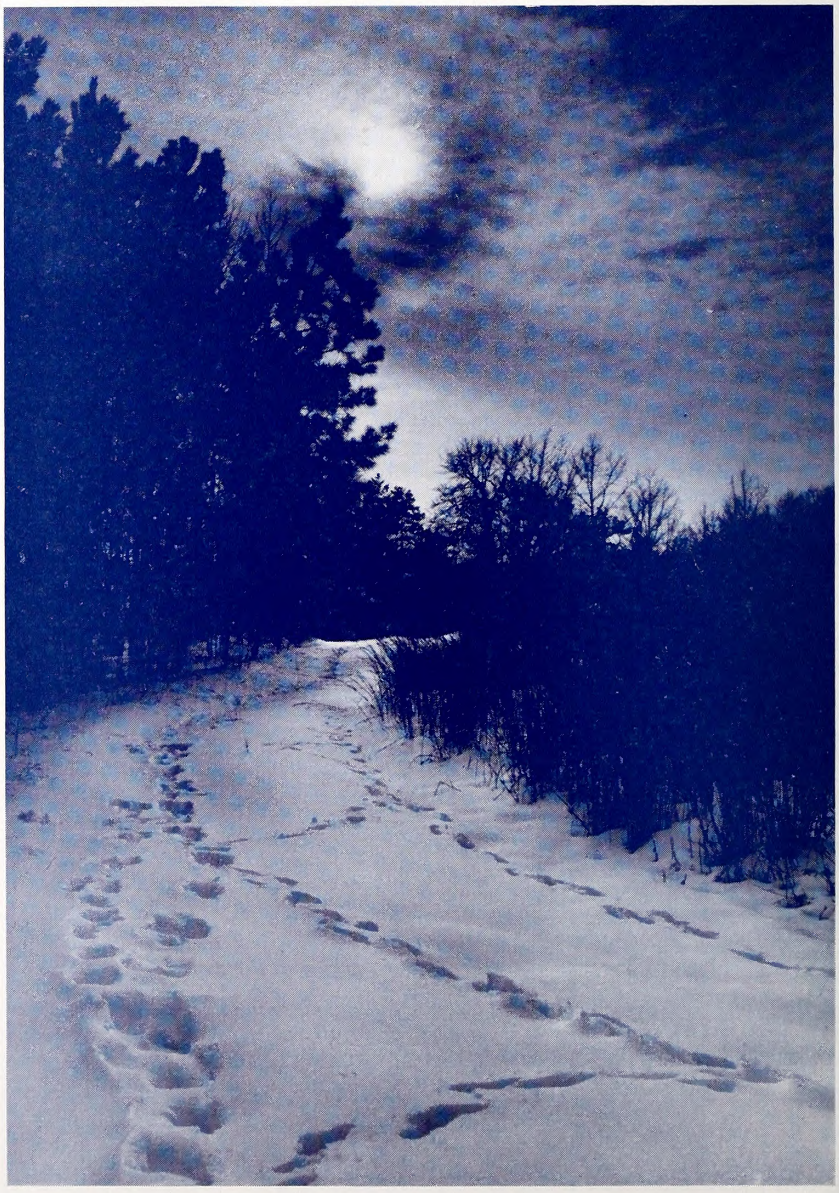
North Carolina State Library
Raleigh

Beaver. The bark-loving beaver finds a tuliptree to his liking. An obvious trail leads to his dinner, one leads away. Note toothmarks.

Protective Cover. Snow-covered wildlife habitat is easy to evaluate. Good protective cover, such as this multiflora rose fence row, stands out—so does the lack of cover. How do your hunting grounds rate?

ADVENTURES IN THE SNOW

A knowledge of animal signs provides the sportsman with an appreciation and understanding of the out-of-doors.



Free-hunting Dogs. If nothing more, a hike in the snow will reveal the number of roaming dogs (and cats) in the state. Their trails are everywhere.

Soil Conservation Society photo by Quentin Patterson

These 89 bluebird houses are one result of a project at the Hillsboro High School. Winners of awards for excellence in building houses from Wildlife Commission plans are, left to right, Mary Sykes, third place; Nancy Freeman, fourth place; Judy Wrenn, second place; Carol Allison, fifth place; and Sammy Weaver, who won first place with his bluebird house.

Bluebirds and the Three "R's"

by Quentin Patterson

Soil Conservation Society

READING, 'riting and 'rithmetic make up the traditional three "R's of education—but students in the 8th grade classes at Hillsboro High School have added another. Resource education has been combined with the three more familiar subjects to produce an unusual achievement in practical conservation.

One result was a total of 89 bluebird houses. Another is a class of 89 students who have a better understanding of their traditional subjects.

The project involved mathematics, English, reading and science classes in Hillsboro's 8th grades, and was completed in the spring of 1960. Mrs. Evelyn Patterson, Mrs. Alpha Blake and Mrs. Lucille Strayhorn planned the venture combining the classroom subjects.

Covered in mathematics classes were problems in dimensions, measurements, and scale drawings. The students were given dimensions for bluebird houses from material available through the Wildlife Commission, and each student was asked to design and build his own bluebird house from these specifications.

The bird houses were put to use in trees, on posts and on buildings. Then began new phases of the project, involving other classroom subjects.

In science, the students observed the use made of their houses and the species of birds that were attracted. They learned that perches aren't necessary for the birds to enter a house. They compared the use of boxes in various locations, and studied nesting, feeding, and other phases of the bluebird's life.

Their English compositions were based on experiences in building and locating the boxes and their observations of birds using them.

Reading became a way of increasing their knowledge in an activity where they had already invested time and study. The reading assignments centered on birds and other forms of wildlife and natural resources.

Winding up the project was a chapel program presented by ornithologist Dr. Charles H. Blake. At the chapel program awards were given students for excellence in constructing their boxes. At the conclusion, all agreed that at Hillsboro High, an important fourth "R" has been added to the curriculum.

Drawing by John W. Taylor

You Can't Listen To a *Mockingbird*

by Paul M. Wheeler
Pfeiffer College

The mockingbird is a songster without peer, a dashing and handsome lover, an arrogant tyrant when his domain is threatened, an accomplished actor, a gourmet, and a gay joker packaged in neat gray feathers.

WE are owned by a *Mimus polyglottos!* That's his Sunday-go-to-meeting name, of course. On weekdays he is better known as a mockingbird. But whatever his label, he has taken us over. He balances on the weather vane, he roosts on the clothesline, he perches on the television aerial—anywhere that gives him an outlook over his kingdom—and proclaims to the whole world that it is his. All his trills and tremolos are merely a formal filing of a claim and a warning to other critters of all kinds to keep off.

And in most cases this graceful songster stands behind his warning and succeeds in keeping everybody off. Woe to pussy if she trepasses. Her tail is tweaked and her dignified fur ruffled till she retreats ignominiously. Our two dogs have been accepted, or, rather, they are ignored. Barking and canine romping are so much fiddle faddle. Since they do not threaten our tyrant's prestige, he acts as if they do not exist.

After we had accepted his pronunciamento, we went to the library to read about him, and discovered that he is one of the 12 most abundant birds in the eastern United States, that he lives largely in the southeastern portion, although he has been observed in Central Park in New York City and even farther north in New England. He has demonstrated his popularity by being selected as state bird by five states: Florida, Tennessee, Mississippi, Texas and Arkansas.

As we became better acquainted, or perhaps I should say became accepted, we verified another piece of information already culled from the books. Our champion's diet consists of 50 percent wild berries and 25 percent bugs, worms, and other animal life. He is particularly fond of spiders. One can hardly refrain from wondering how such a prosaic diet can turn into such a lyric ecstasy!

The other 25 percent of his food consists of cultivated fruits. Unlike the catbird, the mockingbird does not care too much for ground berries. But he loves fruit on trees, particularly figs. We feel, however, that the few that he appropriates are a small tax to pay to help sustain his war on noxious insects, and to pay for the torrent of melody with which he inundates us day and night. Moreover, there is another reason we don't mind: He always selects his one fig like a gentleman instead of taking a whack out of every available one on the trees as the jays and starlings often do.

Feathered Dude

Along with the catbird, who is his first cousin, the mockingbird is one of the neatest and trimmest of birds. His kinship to the brown thrasher is shown by his young who wear light vests that are spotted with brown. The experts say that these three birds have long tails because they do a lot of flitting from bush to bush. The long appendage serves not only as a rudder in flight but also as a brake for making a sudden stop.

The mockingbird's plain body is sometimes confused with that of the catbird. But there is no danger of such an error once he takes flight. "When the mockingbird flies, he shows his underclothes." The white patterns on his wings and tail flash brilliantly. The catbird keeps his concealed—if he has any. Moreover, the catbird breaks into beautiful song only for a very limited season during mating. He soon loses his voice, but the mockingbird never entirely loses his. Although the brown thrasher sings beautifully, and often imitatively, on occasion, there is one unmistakable way to tell his song from that of the mockingbird: If he repeats at all, he does so only once; but the mockingbird re-

peats several times, perhaps to show that he can "recapture that first fine careless rapture" more than once.

This is the deity that rules our yard, and the limits of his domain are quite definite. Two hundred yards away other mockingbirds are telling of their rights on each side of us. We admire our tyrant because he is such a natural ham. He likes to dive-bomb the weather vane. He comes in on a level flight and hits it at high speed. Of course, it rotates rapidly under his impetus and he clings to it till it comes to rest, when he announces his arrival with a burst of song.

And he is such a sensible fellow. He does not panic at the slightest provocation like most other birds, but studies each situation and evaluates it for what it is worh. What other bird would sit on a fence post five yards away and sing while my wife hangs out clothes that flap vigorously in the wind?

On one occasion he was singing on the television aerial when I deliberately started to revolve the aerial with the rotor. For a moment he stopped his effusions and stuck to his stance while he examined the situation, first with one eye and next with the other. Then he flew to the top of the nearby chimney, shrugged his shoulders, and resumed his song. The longest time I have observed him silent is on his daily trip to our chinaberry tree which still bears its winter-softened fruit. He carefully selects one berry and after reducing it to a negotiable pulp swallows it. Just one! We think he gets his vitamins that way!

Fond of Fruit Cake

He is very fond of suet which we keep in a feeding pan for him out of reach of rodents and covered by wire mesh so that the greedy blue jays won't get it all. But best, he likes stale fruit cake. A mild scandal has grown up in the community because we borrow, steal or buy all the deteriorated fruit cake we can find. No one believes us when we explain that "it is for our mockingbird." The fruit cake must be placed in the feeding tray early in the morning or else . . .!

One morning I forgot. My breakfast was interrupted by a series of high, raucous staccato notes that sounded more like sandpaper being rubbed together than anything else. I went to the back door and looked out. "The Boss" was perched on the back porch railing. Was this the mellifluous singer we admired so much? Every ruffled feather showed indignation. And if what he was saying was not bird profanity, I'm sadly mistaken. I hurried out to the tray with my tardy offering. Five minutes later there was a burst of beautiful rhapsody from the backyard.

On only one other occasion did I have a similar lapse of memory and what I saw made such an impression upon me that I have reformed. One morning he came swooping down to the feeding tray. Then he went in: No fruit cake! Well, believe me, that bird crawled out of the box, dragged himself up on top and slumped there with rounded shoulders and feathers puffed out. He was the perfect symbol of dejection and lacked only a tear to label him the best actor in birddom. An allotment of cake cured him quickly.

Our mockingbird has not revealed much about his love life, but what we have seen of his courtship is quite ritualistic. The two birds may face each other, heads erect, wings drooping and tails up. They usually hop four or five feet sideways, still facing each other. Presently he breaks into song. Unlike the female of some species, she has nothing to say. Presently, his song is accompanied by a most strenuous physical demonstration. He may mount from limb to limb of a convenient tree, singing a different rhapsodic song to the very topmost branch. Then he will descend from limb to limb, singing awhile on each.

Or he may use a different approach entirely. Here's the way Audubon describes the mockingbird's courtship: "In his courtship he flies around his mate like a butterfly, his tail spread wide. He ascends, describes a circle, alights, approaches his beloved one and with his beautiful wings raised gently, he bows to her. Then he bounces upward and pours forth his melody."

Home Life

At first, when the female sets up housekeeping, the male has it pretty soft. He sings and eats while his wife works. If he does work, he usually fails to show much discretion about selecting a concealed nest site. It usually is near some habitation rather than deep in a forest, for these birds like their association with human beings. Maybe he is so much in love that he can be excused for being careless! Neither is the nest itself a work of art. It is a sturdy affair of coarse twigs, lined with rootlets, that is more than adequate to hold from 2 to 6 eggs. Sometimes, as many as three broods of young are raised each season.

When the children come, the easy time is over. Both birds take turns feeding their family. And you never heard such a ravenous, squalling insatiable set of youngsters in your life! Poor mamma and papa get pretty bedraggled and thin before the little ones can feed themselves. Soon the young appear to be even larger than their parents, perhaps because of their fresher plumage and the fact that they have not been on the more exhausting side of the food line. We have seen young mockingbirds feeding themselves with complete efficiency till the old folks showed up. Then they became immediately and completely helpless and raised their voices into the most discordant complaint imaginable until their gullible parents stuffed the food down their poor helpless throats! (*Cont.*)

All day long he sings with infrequent interruptions, not missing more than one or two notes to snatch an insect from the air or a mouthful of ripe fig from a leafy covert. He can hardly take more than one swallow of water without continuing his song, acting for all the world as if he resented anything that interrupted him. When he flies from one place to another, he rarely interrupts his melody.

The darkness does not always discourage him. When does he sleep? Do his vocal chords never grow weary? The poets have heard him "singing to his wife in the moonlight," and "he wakes with dawn, lifting to tulip skies a rhapsody." Even in his off season, when he does not sing so steadily, we can hear him now and then tuning up softly, and maybe a little flat, but enough to keep in voice.

His forte is imitating the songs of other birds, but he is not limited to that skill. Archibald Rutledge, the poet laureate of South Carolina, has identified 80 distinct imitations of other birds by a mockingbird on his estate.

A Gay Joker

There is, however, hardly any sound that he cannot imitate "so accurately that he deceives everybody but himself."

It is customary for an elderly farmer who lives near us to push his wheelbarrow to the store every morning past our place. We can almost set our watches by the characteristic squeak of that vehicle which he never seems to oil. One recent morning I heard and saw him passing and resumed my reading.

It was only a moment or so until I heard the wheelbarrow again and thought to myself, "Well, he must have forgotten something; he hasn't had time to get to the store and return." But when I looked out the window there was no sign of the old fellow, although I still heard his wheelbarrow.

Then I saw our mockingbird on a fence post, and I'll swear that I could detect a malicious gleam in his eye and I was sure by the flirt of his wings and his confident perch that he knew perfectly well what he was doing and was enjoying it.

On another occasion I heard our old hen clucking desperately, and through her clucking there was audible the peeping of a biddy in distress. I ran to the back door and saw the mother hen running distractedly here and there. Her brood tried to keep up with her and I managed to count them. They were all there, and on top of the garage sat our practical joker enjoying the whole affair.

And that is the mockingbird—the bird that owns us. He is a songster without peer, a dashing and handsome lover, an arrogant tyrant when his domain is threatened, an accomplished actor, a gourmet, and gay joker all packaged in neat gray feathers. He has staked a claim to our yard, and we are glad.

WHEN the North Carolina Boating Safety Act of 1959 was launched in January 1960, it was anybody's guess as to how it would be received by the average boater. A good bit of advance publicity preceded actual operation of the act, and it was hoped that most everyone would be familiar with the new legislation. The reception really didn't get underway until the boating season splashed into the scene around April 1. Then the shear pins began to shatter.

Some static was expected, but the icy reception that developed rivaled the March snows that preceded it. To many of the boaters who formed the tide of opposition, the whole point of the act was apparently lost in the prop wash of indignation at "another law and another tax." The point remains that the purpose of the act is *safety* for the skipper and others who share the water.

As the 1960 boating season skimmed along, accidents began rocking the smooth sailing. It was then that the tide began to turn. The cry was changed to demand more and stricter laws, and more protection on the waterways. In some cases the awakening came too late. We have another chance right now with the 1961 season heading our way.

Changes in the act were made where necessary and when possible within the law's framework. More revisions will undoubtably follow. But even as originally drawn, if the law had been obeyed to the letter, lives could have been saved. Any law is just as effective as the public makes it.

Family Boating

Boating should be a family affair. Much of what we do nowadays is on a "going our separate ways" basis. In boating, the whole family can take part. Planning for summer outings with the family cruiser leads to some prerequisite activities, though. Many good swimmers drown every year because of carelessness in other departments. But the fact remains that the ability to stay afloat is essential insurance for every member of the family.

A good rule for the skipper and all his crew is: "Know how to swim before coming aboard." This

results in developing another fine water sport in itself and can be started in an indoor pool even in winter. While the family is paddling around, teach some basic survival tactics in the water which may pay off too.

Many people fear the water, others respect it, the rest are either dead or mighty lucky. Teaching your family to respect the water and to enjoy it safely could be tremendously satisfying for you this year.

Youngsters just seem to take to the water naturally (except at bathing or ear-washing times). An early start in the right and safe direction will pay off not only on your boating trips but in safer everyday living. Being careful is habit-forming—so is being careless.

Photo by Jim Lee

Every skipper should outline a set of safety rules to his family or passengers and then insist upon their following them.

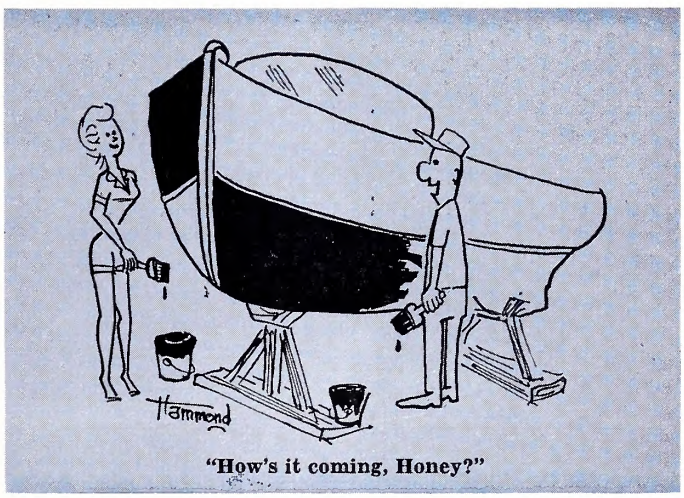
Develop a set of safety rules for everyone while they're on or near the water. And you as the skipper will be expected to observe these rules too. Give your crew and passengers some responsibilities on board and soon they will take boating safety seriously. The attitude that safety is too much trouble may lead to disaster.

Boat Numbers Again

The numbers that were assigned to you and which you so carefully and proudly (we hope) affixed to your boat's hull may actually be illegal.

The hassle centers primarily around the decal and self-adhesive numbers which are either white or of white reflective materials and edged with a black border. If these numbers are used on a hull of a light color, they simply do not contrast and are not legible at a distance. And although the total overall height of the number may be exactly three inches, the black border clips off a quarter to a half inch from the prescribed visible three-inch height. This in itself makes them illegal.

Now this may seem like straining a point, but it's enough for the Coast Guard to issue a special explanation and warning. From this Coast Guard directive is the following: "Title 46, Code of Federal Regulations, paragraph 171.05-5(b) (46 CFR 171.05-5(b)) prescribes such size, color and type by requiring that numbers applied to a boat's hull be 'in block character of good proportions not less than 3 inches in height,' and 'of a color which will contrast with the color of the background so as to be clearly visible and legible; i. e. dark numbers on light background, or light numbers on a dark background."



"How's it coming, Honey?"

Because many boaters applied this type of number to their boats in good faith, the Wildlife Protection Division of the Wildlife Commission has not so far enforced this provision. However, since this directive removes any doubt as to the Coast Guard's stand and course of action, citations will be issued by both the Wildlife Commission and the Coast Guard beginning July 1, 1961, in cases where numbers are used which do not meet minimum requirements.

This means that only numbers of a solid color (not black and white unless the body of the letter is at least three inches high) displayed on a contrasting colored hull will be acceptable after the deadline date. Other numbers being used which do not meet legal requirements include script designs and semi-block styles of very poor proportions.

Some manufacturers represent their numbers as "Coast Guard Approved." Actually numbers for use on motorboats are not among those items requiring approval by the Commandant of the Coast Guard and such representation violates Federal law.

DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Sometimes responsibility is difficult to establish, clearly define, or to place. A question arises as to the responsibilities of wildlife management agencies to the people they serve in comparison to the general public.

There is no question of responsibility to anglers or hunters. Their license fees pay the cost of the management program, and they have every right to expect a direct return. At the same time, however, they should realize that other interests than hunting and fishing must be served. Two vitally important interests are agriculture and forestry. A vast majority of small game is produced on privately-owned agricultural land, and a well-balanced wildlife management program must take into consideration the farmers' interests as well as those of the hunter or angler.

Big game is produced on forested land, much of it in public ownership. It is logical, therefore, that forest management and wildlife management go hand in hand.

Clyde P. Patton, who has headed up North Carolina's wildlife management program for thirteen years says this: "Although first consideration justly goes to serve the interests of the license-buying sportsman, those interests can best be served only when other appropriate interests are served at the same time."

Dr. Ira Gabrielson in his book "Wildlife Conservation," 1941, has the following to say on the rights of wildlife and citizens who do not hunt or fish.

"A great part of the public is indifferent to the success of wildlife conservation, feeling that it has as its chief object the provision of targets for the guns and of fish for the lures. Official agencies are at least partially responsible for this feeling, which traces to the fact that conservation agencies often depend for their financial support upon fees for hunting and fishing, and that, therefore, they feel responsible for their acts to those who hunt or fish rather than to all the people. Such an unfortunate narrowing of the wildlife program results in a corresponding limitation of public interest and understanding.

"Conversely, many who hunt and fish feel that they have a greater interest in the out-of-doors than those who do not, and a proprietary right in the wildlife of forest and stream. As a rule, they do manifest interest in wildlife, for when there is any crisis, such as a severe storm that renders unavailable the food supply for local game birds or mammals, those who hunt or fish are the ones who respond most quickly to the emergency and who help with either food or effort to see that the brood stocks for the next year do not perish. There is, however, a steady public feeding and protection of all kinds of wildlife that can be attracted to the vicinity of homes. This is not undertaken by sportsmen alone nor does it wait for crises, but it benefits some of the favorite game groups, as quail, rabbits, and squirrels, and it is safe to say that it is done at a great percentage of the homesteads of the nation.

"The greater right of those who hunt or fish to dictate policies of wildlife conservation is widely questioned. Under American law and theory game and fish belong to the state—that is, to all the people. *Those who hunt or fish pay license fees for the privilege of reducing to personal possession certain bits of this common property, but their fees give them no better title to the remaining stock than that of any other citizen.* In practice, however, the interest of the license holders is manifested so much more than that of the average citizen that its effect on the policies and regulations for harvesting wildlife is much greater than is justified by the proportionate numbers of persons involved.

"The history of American game conservation shows that sportsman influence can be harmful as well as beneficial. It has been injurious when groups have devoted their energies to fighting for greater harvesting privileges than the supply warranted, or to squabbling over details of regulation and administration. It has been beneficial where local leadership has been wise enough and strong enough to

insist on the employment of competent administrative personnel and the development of careful plans for safeguarding and perpetuating wildlife.

"Many of the wisest leaders of conservation have come from the ranks of sportsmen but they were men who were able to look ahead and foresee the effects of the abuses to which wildlife resources were being subjected. It is also true, however, that most of the resistance to intelligent game-conservation programs has come from those who hunt and fish. This spirit of resistance still prevails, and the adverse attitudes of groups of sportsmen is still too often a major factor in hampering conservation programs."

Wants Back Issues

DEAR SIRS: I would like to get any back copies of Wildlife Magazine from January 1954 to December 1959. If any reader has copies he does not want I would certainly appreciate them very much. The part of the magazine I am most interested in is the section with the protector of the month in it. The series started in January 1954, and the Wildlife Commission supplied me with back copies of Wildlife as far back as January 1960; but they do not have any other back copies available. If any reader would clip out the picture and story of the protector of the month and send it to me I would be very grateful. My reason is that collecting pictures and stories on wildlife law enforcement is my hobby. WILLIAM CONNORS, 8 WINSHIP ST. BRIGHTON, 35, MASS.

Do We Have a State Mammal?

DEAR SIRS: I have a sheet from the Wildlife Magazine of March 1953, which states there was to be an election from April 1, to June 1, to elect a state mammal. Was there one named? I have never seen an account of one officially named.

Each year I teach the State tree, bird, and flower to my students in whatever grade I teach. But I have not known myself what mammal was chosen for the State. Will you please send me this information?

Do you have any free material available to teachers on wildlife of any nature, of North Carolina? If so I would appreciate anything you have available, and also a list of the mammals of North Carolina.

We are now completing a unit on the squirrel, which is always interesting and enjoyable. Thanking you in advance for the information and any material I may have. (MISS) ETHEL BURLESON, SALISBURY

Wildlife Commission Chairman Robert M. Carr of Wallace is shown handing John O. Brown, Charlotte, a check for $50.00, first prize in the 1960 subscription contest. Brown sold a total of 1,216 subscriptions to Wildlife. Runners-up were Eugene Jones, Siler City, 1,080; J. D. McLean, Gastonia, 795; and Leroy Bostick of Laurel Hill, with 656. A total of 21,107 subscriptions were sold in the contest.

Like the 1960 Presidential election, the vote on our most popular mammal was close. The grey squirrel probably won, although the cottontail rabbit made it look like a draw. Thus far North Carolina does not have an *official* state mammal.

Free material is available to teachers, including a list of the mammals of North Carolina which has just recently been published. Requests for information, whether from teachers or students, should be as specific as possible.

A Rat With a Bad Hangover

Jack Wilson of the Elizabeth City *Daily Advance* sent us this picture he took of Vernon Ward, Elizabeth City, who brought the critter (a nutria, sometimes called coypu) to the *Advance* for identification. Although *Wildlife* rarely uses pictures of dead fish or game, the editors consider this unusual enough to pass along. The nutria is a native of South America that looks, as Wilson described it, "like a rat that got up in the morning with a bad hangover."

Nutria have been transplanted to the U. S. because the South American animals have valuable pelts. In this country, however, the furs are worthless, resembling "a growth of crabgrass."

Nutria are about the size of beaver, have a long rat-like tail, typical rodent teeth, an appetite for grass, leaves, roots and garden vegetables. On Hatteras they are a nuisance to gardeners.

Note the webbed hind foot of the nutria, a physical characteristic that helps the rodent scurry about the marshes of the coast.

PROTECTOR OF THE MONTH

J. L. Musselwhite

The New Hanover County Wildlife Protector, J. L. Musselwhite, was born in Robeson County on September 19, 1928. He attended Barker Ten Mile High School.

Mr. Musselwhite has been with the Wildlife Resources Commission for ten years, starting as an assistant refuge manager on the Sandhills Wildlife Management Area. In 1952 he was appointed to his present position. He had attended four Wildlife Protectors' Training Courses conducted by the Institute of Government in Chapel Hill. He is a member of the Southeastern Law Enforcement Association and the North Carolina Police Voluntary Benefit Association. He is also a hunter safety instructor for the National Rifle Association.

Mr. Musselwhite is married to the former Jacqueline Dixon of Lumberton, and they have two children. They live at 5007 Barefoot Drive in Wilmington.

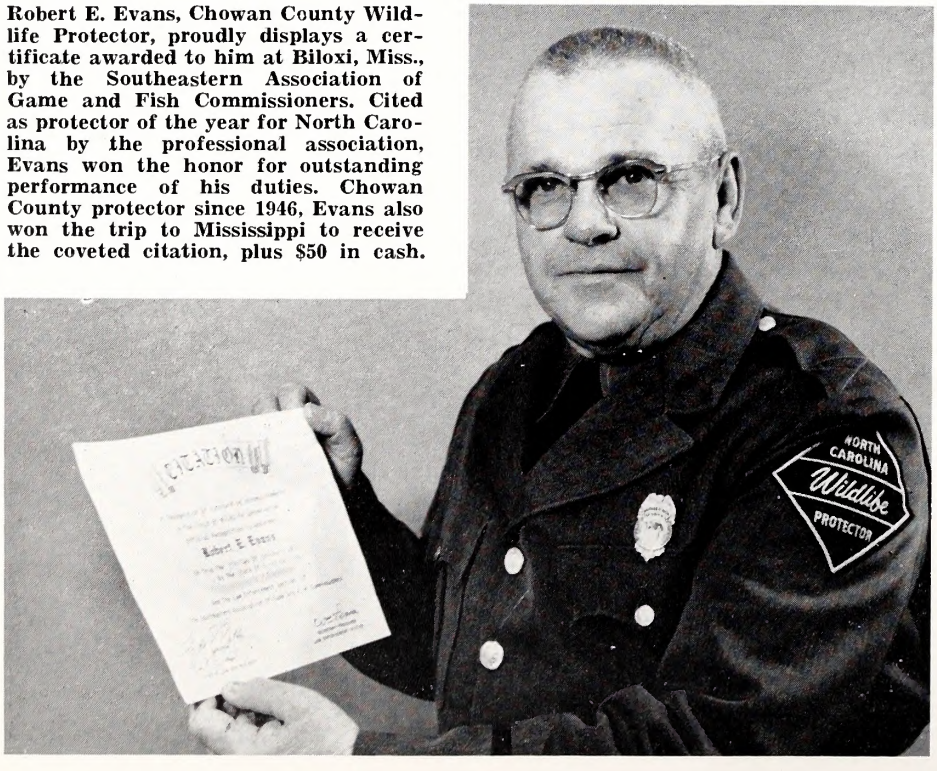
ENFORCEMENT RECORD FOR NOVEMBER

HUNTING & FISHING:	
Persons checked	38,837
Total prosecutions	946
Total convictions	915
Total cases not guilty	14
Total cases nol prossed	13
Total cases dismissed	4
Total fines collected	$10,123.75
Total costs collected	$ 6,250.30
BOATING:	
Boats checked	49
Total prosecutions	20
Total convictions	19
Total cases not guilty	0
Total cases nol prossed	1
Total fines collected	$ 205.00
Total costs collected	$ 160.00

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

PROTECTOR OF THE YEAR

Robert E. Evans, Chowan County Wildlife Protector, proudly displays a certificate awarded to him at Biloxi, Miss., by the Southeastern Association of Game and Fish Commissioners. Cited as protector of the year for North Carolina by the professional association, Evans won the honor for outstanding performance of his duties. Chowan County protector since 1946, Evans also won the trip to Mississippi to receive the coveted citation, plus $50 in cash.



An Earlier Quail Season

DEAR SIRS: I was most interested in an article, which I enclose, from the November issue of the "Tennessee Conservationst." Incidentally, if you do not receive this publication, they will send it to you on request, and without charge. I find it quite informative to compare our Wildlife Magazine with this sister state publication. I might add that I like ours better, even though it costs me 50 cents a year and the Tennessee magazine is free.

The article though seems to make sense to me. Now I am no hunter; I take it all out in fishing, but still the chart and the explanation, gist of which advances the notion that we ought to shoot birds (quail) earlier, before they starve or are eaten by predators, seem pretty convincing. I am wondering if you and other wildlife leaders have thought of this, and if so, what is your opinion? Could we do a survey with emphasis on the same factors? The fact that some other states have earlier open season than we and still have adequate quail stock gives some further strength to findings of the Tennessee survey. DR. J. E. ADAMS, SANFORD

Although Thanksgiving Day has been the traditional opening date for rabbits, wild turkeys and bobwhite quail, there is reason to believe that in the case of quail and rabbits, at least, we are losing out on a lot of shooting by not opening the season a couple of weeks earlier. It goes back to the natural selection law. Natural selection—natural mortality begins with the first cold weather. And with record-setting cold coming on election morning to most of the State, the process of natural selection started working. The weaker birds start dying off, and the more vigorous ones survive. That is Nature's way, but a lot of birds that are eliminated before Thanksgiving Day might just as well have provided targets for bird hunters. As it is, there might be considerable waste.

Turkey hunters, of course, would say that opening the season on quail earlier would tend to have young turkeys killed illegally by quail hunters, and this is a possibility. But the same thing could be said of squirrel hunters, and dove hunters, and duck hunters—and on and on.

Hunters and biologists alike should keep in mind that, except under extremely critical conditions, hunting pressure has little or no influence on dove, rabbit or quail populations.

This dogfish, flopping on the beach north of Surf City, deserved a better fate than he received. In 1907 the Deputy U. S. Commissioner of Fisheries predicted that soon the dogfish would become an important food fish in North Carolina, explaining its lack of use as ignorance and prejudice. The little shark, cussed by surf fishermen as a nuisance, would make fine eating if steaked and fried like king mackerel.

Cooperative Dove Program

Federal and State wildlife interests have agreed on a comprehensive program aimed at improving the management of mourning doves, according to the Wildlife Management Institute. The program, largely developed by a committee special of the International Association of Game, Fish and Conservation Commissioners and subsequently accepted by that organization, outlines the activities that are needed and, assigns responsibilities for their implementation.

At the recent meeting of the Southeastern Association of Game and Fish Commissioners, Leonard E. Foote, the Institute's southeastern field representative, explained that the "objective of the entire program is to provide reasonable recreational use with maximum security for the species, to insure its protection yet reap its benefits to both bird watcher and hunter."

What to Do About Backyard Skunks

Nobody need be reminded that the best thing to do with skunks is leave them alone. But if skunks around your home or garden are causing annoyance, officials of the Ontario Lands and Forests Department can tell you the best way to get rid of them.

The malodorous skunk has a sweet tooth for eggs, and eggs can be used as bait to trap them—provided the egg is broken. Place the egg bait in a box trap or a steel trap and the unwary skunk will usually fall for the lure.

Says a Department official: "If a steel trap is used where there are no neighbour's pets to get into it, the chain should be attached to a ten-foot pole, so that the skunk may be drawn out of the hole and lifted off the ground."

What to do then with the lethal little animal? "He may then be carried to water and drowned." the official explains, "or lowered carefully into an open sack, after which the trap may be freed.

"Once in the sack, the skunk may be disposed of as wished. This treatment should produce no smell, or if it does it should be all in the sack. Live traps should have a slide door, permitting the skunk to be released or shaken out into a sack for later disposal. A sacked skunk may be drowned in a pail or carried far away and released."

"Live-trapped skunks may also be gassed in the trap. Place the trap in a larger box and use automobile exhaust fumes."

What should you do if the skunk gets in a parting shot with his built-in atomizer? Use tomato juice to wash off the offensive skunk musk — it's the nearest thing to an antidote you're ever likely to find.

But the official emphasizes that skunks are best left alone. "Sometimes," he says, "they develop a liking for ears of corn and have to be controlled. But around suburban gardens they do no harm and create no nuisance unless the family dog puts them on the defensive. On the contrary, they destroy large numbers of cut worms, white grubs and larva of many other insect pests."—*Ontario Department of Lands and Forests.*

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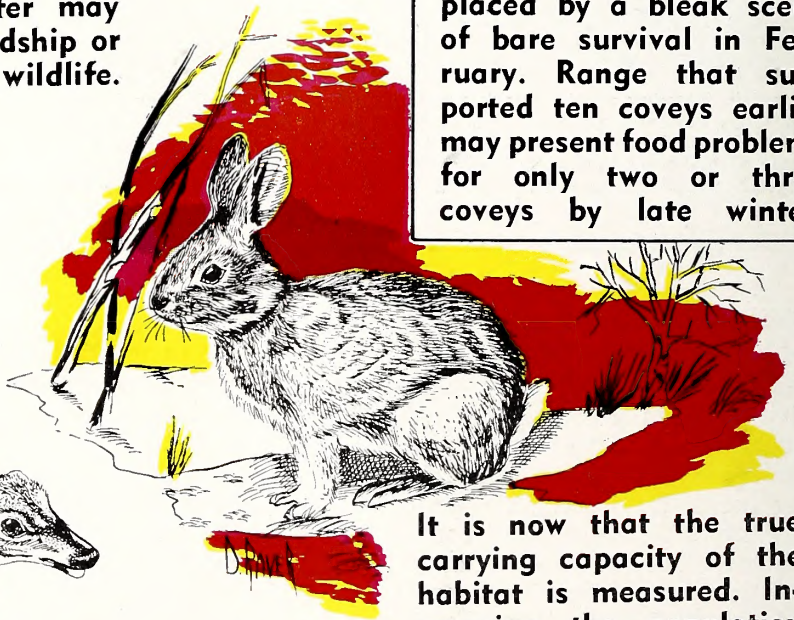
WILDLIFE'S Critical Time

Gone is Autumn's abundant crop of foods. Nuts and fruits have been consumed or have fallen to sprout. Late winter may mean hardship or death for wildlife.

The wildlife world the hunter saw in the glowing fall season is replaced by a bleak scene of bare survival in February. Range that supported ten coveys earlier may present food problems for only two or three coveys by late winter.



Big game feels the late winter pinch also. A poor mast crop increases the chance of starvation if the browse supply has been depleted by an overly large herd of deer.

It is now that the true carrying capacity of the habitat is measured. Increasing the population by stocking may only make a more critical situation.

How do your hunting areas shape up now? For more game next season, plant wildlife food and cover where needed.

PRINTED BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

Wildlife in north carolina

ten cents

march 1961

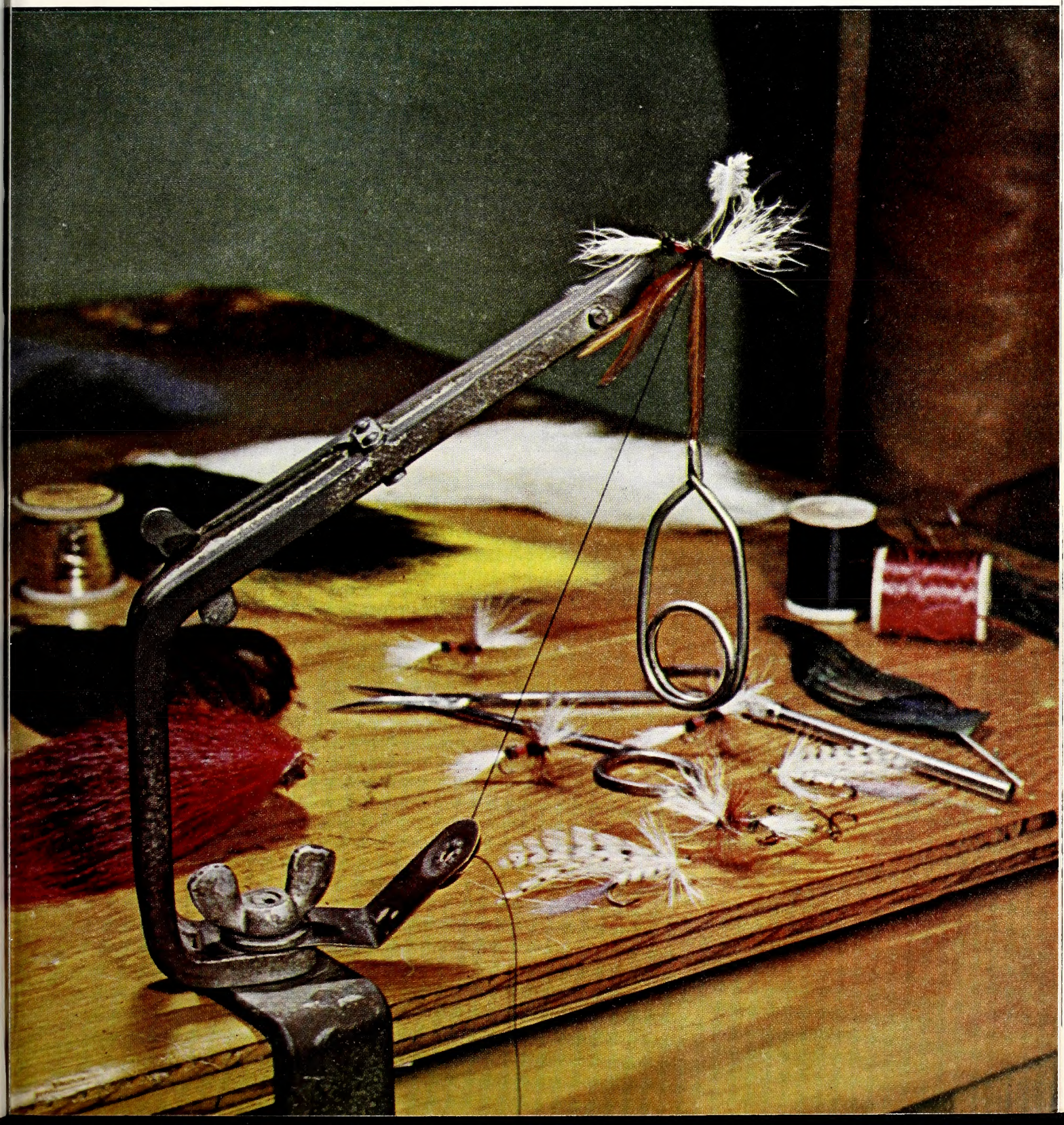


Photo by Jack Dermid

Sign of Spring

After winter's cold, spring brings a welcome change to the out-of-doors, and where the forest floor was once covered with a monotonous blanket of dead leaves, wildflowers suddenly unfurl with the warming of the March sun. Bloodroot, shown with still unopened blossoms, is one of the first signs of spring. It heralds the awakening of life and a new fishing season.

State of North Carolina

TERRY SANFORD
Governor

North Carolina
Wildlife Resources Commission

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J. A. BRIDGER, *V. Chm.* ..... Bladenboro
T. N. MASSIE, *Sec'y* ..... Sylva
G. E. BEAL ..... Red Oak
THURMAN BRIGGS ..... Lexington
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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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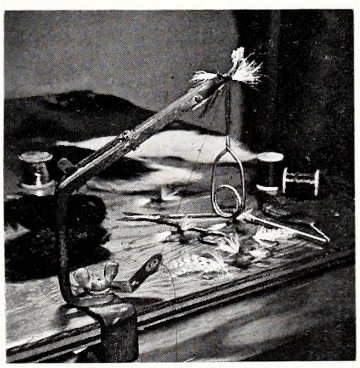

March is a month-in-between. The hunting season is over and the fishing season hasn't quite arrived. But a lack of outdoor activity doesn't bother the sportsman if he has an indoor hobby. One of the most interesting and challenging of indoor pastimes is fly tying. It is a hobby that pays dividends in more fishing fun. Many books have been written on the subject, and many sporting goods stores stock beginners' kits of supplies and equipment.

The setup on our cover belongs to Lee Tebo, Commission biologist, who is getting ready for the opening of the trout season on April 2. The partly completed fly is a Wulff Royal, a popular and effective dry fly. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Photo by Jim Lee

More than a million acres of national forests provide a reserve of timber and additional assets of wildlife, watershed protection, and valuable recreation within North Carolina.

WILDLIFE

In North Carolina National Forests

by Donald D. Strode

U. S. Forest Service

THE North Carolina National Forests consist of Pisgah and Nantahala in the mountains, Uwharrie in the Piedmont, and Croatan on the Atlantic coast. Combined in one administrative unit, these national forests comprise a total of 1,123,000 acres in North Carolina. By anyone's standards, this is a big hunk of real estate.

Most of this land is suitable habitat for game, birds and fish—thus the importance of public land to the sportsmen of the state is obvious.

If our state's population increases at its expected rate, then recreation, hunting, fishing, the need for wood and the demand for water will also increase greatly in the next 25 years. The North Carolina National Forests must share the responsibilities of meeting these needs. To meet this challenge, Forest Service lands must be managed under multiple-use and sustained-yield principles.

Multiple Use From the Beginning

Multiple use of forest lands in the United States did not spring into full flower overnight. While the term has become common only during the past two decades, the principle of multiple use in the United States goes back to the origin of the national forests more than half a century ago.

National forest policies from the very first emphasized resource use. The Secretary of Agriculture instructed the U. S. Forest Service at the beginning to devote national forest land to its most productive uses for the permanent good of the whole people, that all of the resources were for use, and that decisions would always be made from the standpoint of the greatest good of the greatest number of people. These instructions have constituted Forest Service doctrine from the beginning.

Multiple Use Becomes the Law

Full recognition of multiple-use principles of land management was given by the 86th Congress of the United States. "The Multiple-Use Sustained-Yield Act" (which became a law in 1960) directs that the renewable resources of the 181 million acres of national forests shall be managed for sustained yield and multiple use.

General legislative authority to manage these public properties for continued use of their watershed, timber, forage, outdoor recreation, wildlife and fish resources was provided many years ago. The significance of the recent legislative enactment is first, legislative recognition of multiple-use and sustained-yield principles of management; second, a clear-cut directive to apply these principles on the national forests; and third, naming the basic renewable resources for which the national forests are established and administered, assuring them equal consideration under law.

Multiple use is by no means an assemblage of single uses. It requires conscious, coordinated management of the various renewable resources, each with the other, without impairment of the productivity of the land.

Wildlife and Its Problems

North Carolina National Forests' interest in wildlife and its problems date back to October 17, 1916, when President Wilson, by proclamation, created the Pisgah National Game Preserve. The land had been purchased from the Vanderbilt Estate in 1915.

At the time the Pisgah National Game Preserve was created, there was no state game department, and each county prescribed its own laws pertaining to fishing and hunting. From many accounts these laws varied considerably, and enforcement was practically non-existent.

The Pisgah preserve provided one of the first concrete wildlife management programs for the western mountains of North Carolina. Deer at that time were especially scarce, only found in a few scattered areas.

U. S. Forest Service

With careful management it is possible for national forests to produce a bountiful supply of timber, and at the same time protect the other resources such as cold clear trout waters.

Programs at Pisgah

Wildlife protection for the Pisgah preserve was provided by the Forest Service. It is interesting to note that in 1919 there were 42 wildlife cases, of which 35 resulted in convictions, two in acquittals, three were nol-prossed and two were continued. Two of the convictions carried prison sentences, but usually the fine was $5.00 and costs. It should be remembered that in 1919 this was a lot of money.

In addition to wildlife law enforcement, projects were started to raise fawns and to trap deer for restocking purposes. Deer were provided for ten other states as well as many mountain areas in western North Carolina. Controlled public hunting began in 1932, and other projects were initiated such as the building of stream barriers for trout.

Fishing on the Pisgah National Game Preserve was begun on a permit basis in 1917. The cost of the permit was $1.00, and the number of fishing days recorded that year was 1,400. In 1926 the average catch per person was six trout. This figure can be compared with the average catch of 3.8 fish per person per day for the 1959 season on the Pisgah Cooperative Wildlife Management Area—but there were 1,400 man-days of fishing in 1917 compared to 10,700 in 1959.

The average catch per day has decreased by only two fish per day, while the intensity of fishing has increased more than seven times.

Experimental Stocking

Another of the interesting programs carried on at the Pisgah preserve was the creation of a game pasture. This pasture was completed in January, 1917, near the northwest corner of the preserve. It embraced 235 acres, 60 of which were cleared.

The American Steel Wire Company donated the wire for fencing; Asheville and Buncombe County furnished labor for erection of the fence; the Forest Service supplied locust posts and paid the expense of administration; the Park Service furnished nine elk, and the Southern Railway remitted the freight charges. Later, six buffalo were stocked on the area through the courtesy of the American Bison Society.

The elk and the buffalo have of course long since disappeared due to their incompatability with civilization, but the number of organizations cooperating in this project attests to the public interest in wildlife at this comparatively early date.

During the years of the Pisgah National Game Preserve, several wildlife research programs were begun by the Forest Service. Primary emphasis was placed on deer research. Disease, life history, food habits and reproductive studies were a few of the problems investigated.

Some of the basic information gathered during this period is still of immense value and is being used today. One of the outstanding publications recording some of these early research activities is "The White-tailed Deer of the Pisgah National Game Preserve," by Frederich J. Ruff.

Cooperative Wildlife Agreement

On April 12, 1937, the U. S. Forest Service and the North Carolina Department of Conservation and Development signed a cooperative wildlife agreement. With the signing of this document a new era of wildlife management was inaugurated on the North Carolina National Forests. The original cooperative agreement has been revised on several occasions, and at the present time the operation of wildlife management areas on North Carolina National Forests is a cooperative endeavor between the North Carolina Wildlife Resources Commission and the North Carolina National Forests.

Thirteen cooperative wildlife management areas, comprising 356,650 acres, are presently in operation on the forests. One of the major activities of the Forest Service under the cooperative agreement is to maintain and improve wildlife habitat.

A few of the projects for the past year include grass seeding of logging roads and log landings for wildlife food plots, controlling erosion and keeping silt out of trout streams, building hunting and fishing access trails, and constructing fish barriers to help keep trash fish out of trout streams.

Other work being done by the Forest Service includes road construction for trout restocking and hunter access, construction of wilderness hunt camps, construction of checking stations, maintenance and improvement of refuge dwellings, construction of foot bridges for access across streams, providing help during operation of man-

The North Carolina National Forests are organized into four administrative units. Nantahala is in the southwest, with Pisgah in the north, Uwharrie in the Piedmont, and Croatan located in the Coastal Plain. Headquarters are in Asheville.

Illustrations by Jim Lee

The Wildlife Commission works closely with the Forest Service. Here Commission biologists weigh a crate containing a deer at Croatan, brought from Wisconsin for experimental stocking.

aged hunts, and maintenance of established access trails and lanes.

Work at Both Ends of the State

In order to maintain suitable habitat for wildlife on national forest lands, certain plans and policies have been established. These result in another phase of the wildlife management program, one applied to all of the 1,123,000 acres in North Carolina.

Habitat improvement practices include modified cutting around ponds, seeps and savannahs to retain groups of desirable game food trees; preservation of natural groups of conifers for grouse cover above 3,000 feet and for turkeys elsewhere; providing a sufficient number of den and roost trees to meet wildlife needs; and in mountain forests, maintaining enough trees along stream bottoms to provide necessary shade for trout streams.

Although timber growth and harvest is an important function of the national forests, the multiple-use concept is recognized in timber harvest practices. Zones are established along selected streams and lakeshores, where only salvage cutting is permitted.

Siltation and clogging of streams following timber harvest could seriously affect the watershed and the fish and game dependent on a steady flow of clean water. Logging roads are kept away from streams as much as possible, log landings in streams are prohibited, loggers are discouraged from felling trees into streams, and every effort is made to prevent stream pollution from sawdust and other sawmill wastes.

Only Through Research

The science of wildlife management is making tremendous strides. However, there is a continued need for improving our knowledge of wildlife, and for improving our techniques. The Southeastern Forest Experiment Station at Asheville has wildlife research men on its staff who are engaged in basic forest game research. Research findings from this station, along with information from the U. S. Fish and Wildlife Service and the Wildlife Resources Commission, play a vital role in present and future wildlife management programs on the North Carolina National Forests.

Looking Toward the Future

In looking toward the future, several broad goals must be achieved if we are to provide adequate wildlife recreation for future generations of North Carolina sportsmen.

First, in order to supply adequate hunting and fishing opportunities for a growing human population, wildlife programs must be extended to all North Carolina national forest lands. This type of program can be carried out best through cooperative projects between the Wildlife Resources Commission and the North Carolina National Forests.

A permanent pasture planting at Pisgah provides supplemental food for some of the deer on this vast forest. The Commission cooperates with the Forest Service on many wildlife projects.

Second, wildlife populations that are consistent with other renewable natural resources and the carrying capacity of the land must be maintained on all national forest lands.

Third, better distribution of hunting and fishing pressure must be achieved throughout the forests. In many instances, hunters and fishermen congregate around main routes of travel, leaving large tracts of land virtually unused for wildlife harvest.

North Carolina National Forests' administrators have a keen interest in wildlife and recognize the Forest Service obligation to sportsmen to maintain and improve wildlife habitat conditions on national forest lands. To carry out this program, public support is vital.

Sportsmen can help in several ways. By strict observation of the game laws, by guarding against forest fires, and by supporting biologists' recommendations, you will help the North Carolina National Forests continue to provide you with hunting and fishing opportunities.

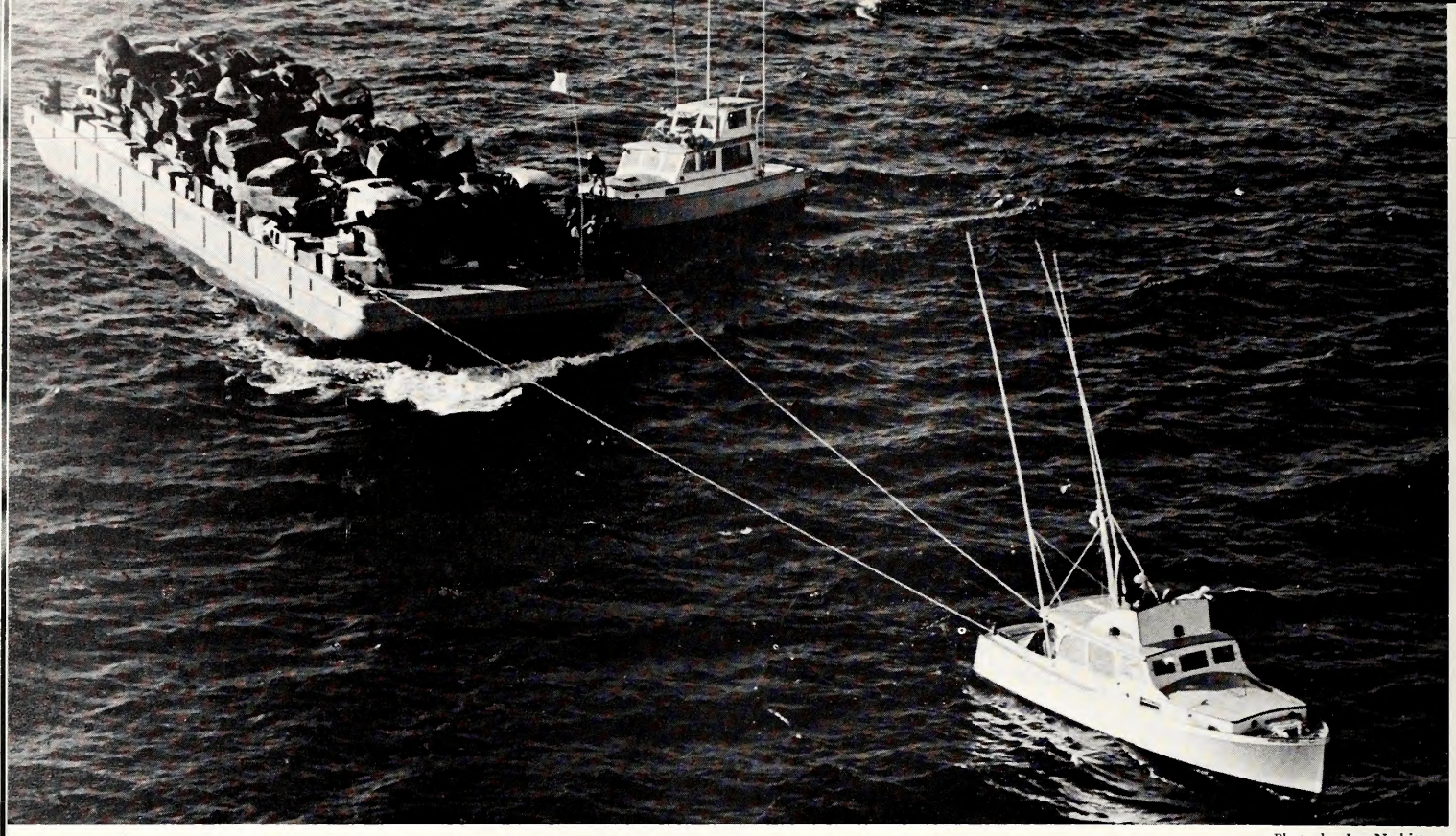


Photo by Joe Nesbitt

Preparing to drop the first load of wrecked cars and appliances for the artificial fishing reef, charter boats maneuver the barge into position some eight miles from Wrightsville Beach.

A Seafood Platter for the Fish

by Jim Hardie

Sports Editor, Wilmington News

NORTH CAROLINA's first artificial fishing reef is being built off the coast of New Hanover County, between Masonboro Inlet and Carolina Beach. A conglomeration of old automobile bodies and large household appliances—including cook stoves, washing machines and hurricane-soaked refrigerators—the reef is expected to give salt-water sports fishing a shot in the arm.

You might think of this underwater "junk yard" as something of a Davey Jones amusement park, complete with Crazy House and Tunnel of Love—but the attraction isn't housing, it's food.

Fish congregate where food is plentiful, and the tangled wreckage of the artificial reef will soon be encrusted with the marine life on which game fish feed. Fishermen learned a long time ago that fishing is good around old shipwrecks, and now the New Hanover group is using this knowledge to better their own fishing.

California, Texas, Louisiana and Virginia have built artificial fishing reefs, and all report tremendous success. Actually, this business of building reefs to attract fish is nothing new. Japanese commercial fishermen have been doing it for years. Salt-water sportsmen in the United States took to the idea in hopes of developing unproductive areas. This was particularly true in the Gulf of Mexico where Texas and Louisiana built reefs.

In every instance the reefs have paid off handsomely. In offshore areas already producing fish, it was reasoned that the addition of some old auto bodies would greatly enhance the fishing. It was tried, and proved successful.

Sportsmen in North Carolina have been talking about building a reef ever since a couple of other states tried it with success. Nothing was done, however, until the fall of 1960, when a group of Wilmington businessmen got together to discuss the situation.

A public hearing was held, and Jimmy Van Dyck, an expert on artificial fishing reefs from Norfolk, Virginia, was guest speaker. He outlined the steps necessary in building a reef. And he issued a warning to the sportsmen for them to be patient. "These things take time to build," he said.

Claude Rogers, executive secretary of the Virginia Salt Water Sport Fishing Association, accompanied Van Dyck. He told the public hearing, "An artificial reef is the quickest way to insure good fishing in the shortest time with the least expense."

Kenneth Sprunt, a Wilmington businessman and masterful organizer, was chosen to head the drive for the reef.

Meanwhile, a group in Southport had already begun steps to build an inshore reef near Baldhead Island. They encountered some difficulty with the project, and the status of their reef is somewhat indefinite at this time.

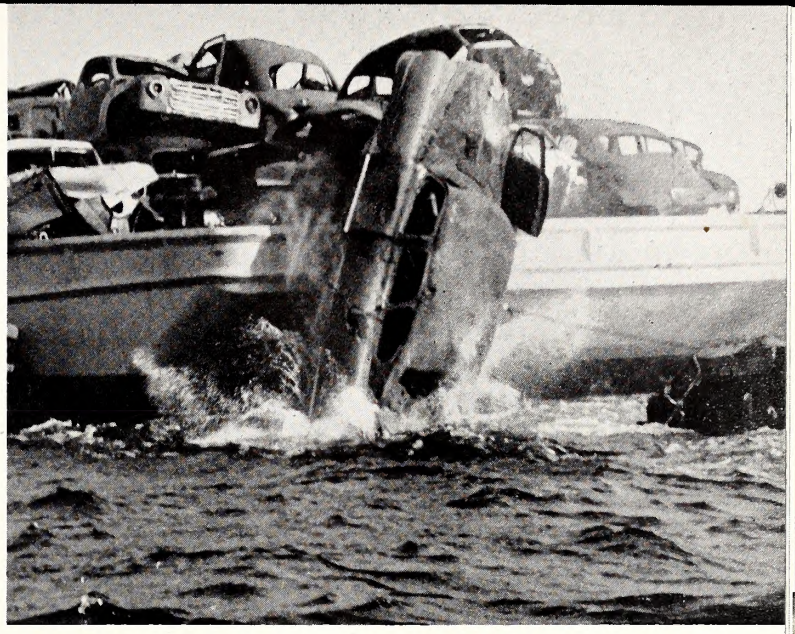
Sprunt spear-headed organization of the New Hanover Fishing Reef Association, Inc. It is an independent non-profit organization.

Committees were set up to handle details of the project. The committees were finance, reef material, hauling, barge, tugboat, loading and unloading, location of loading area, and legal.

A drive was begun to secure funds. By early January, when the first barge was taken to the area, more than half of the necessary funds were on hand. "To date we have collected about $3,000 of the $5,000 which will be needed to build the reef," Sprunt said. "We have been operating on a shoestring as far as finances, but the cooperation of individuals has been good."

He explained that more than a hundred old car bodies were ready for hauling during the first phase of the operation. "We had the cars plus a quantity of other material," he said.

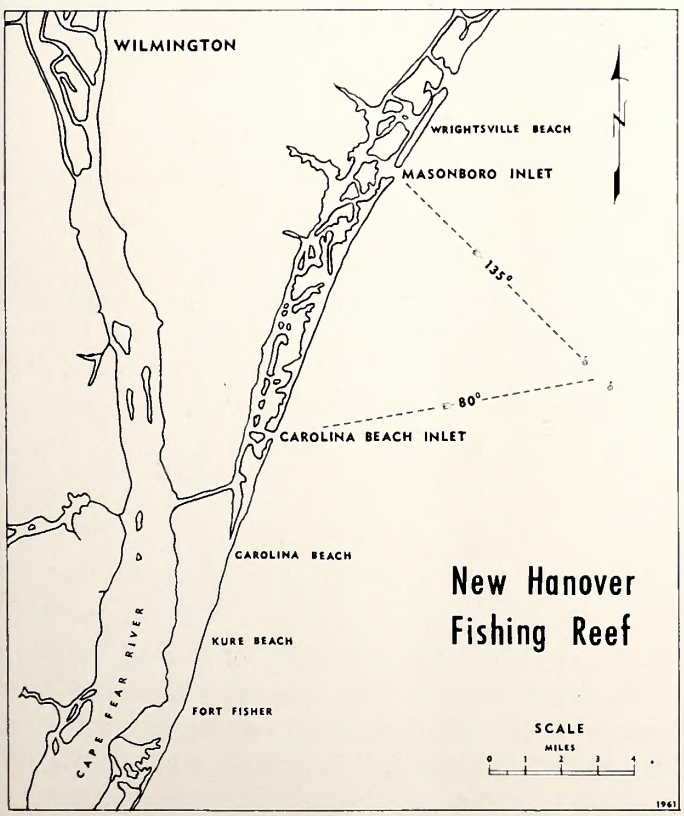
Plans called for two to three hundred car bodies to be dropped offshore before bad winter weather halted the operation. The final goal is a thousand old cars.



The cars were cabled together and one end of the cable was anchored. Then the barge was slowly pulled from under the cars, which tumbled with huge splashes into their watery graveyard.

This map shows the approximate location of the fishing reef, with bearings from Masonboro and Carolina Beach inlets. The reef will be marked with unlighted orange and yellow buoys.

Illustrations by Jim Lee



The reef will be located midway between Masonboro inlet and Carolina Beach, at a point approximately eight miles offshore.

The reef eventually will be almost a mile in length, and not more than 200 yards wide. The shape will be as near a straight line as possible. In water averaging 60 feet in depth, the reef will rise some 12 feet from the ocean floor. It will stretch in a northwest to southeast line.

The material will include old automobile bodies, refrigerators, cook stoves, washing machines and concrete scrap. Only larger pieces will be used so that ocean currents won't scatter the materials. Most of the materials will be cabled or chained together. with the automobiles connected in groups of six to ten.

Unlighted buoys will be maintained at each end of the reef. The northerly buoy will be painted orange, and the southerly one painted yellow. Each buoy will be marked with a metal flag.

The site was selected on the basis of information provided by skin divers. Edward Beecham and E. V. Moore, a pair of professional divers, studied the ocean bottom in the area of the reef and selected a specific location where rock formations are already present.

The New Hanover group chose an offshore site hoping to improve game fishing populations. They expect to find sailfish, dolphin, king mackerel, cobia, wahoo, amberjack and bonita. Bottom fish are also expected to thrive on the underwater seafood platter, with sea bass, perch, gray trout and others tugging at the lines.

Time will tell the story, but the members of the association hope to begin reeling in dividends in the summer of 1961. Should their hopes be fulfilled, you can expect a continuing shortage of old cars in the Wilmington area.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Hunting Season Closes February 15

February 15 marks the closing of major Tarheel hunting seasons on rabbits, quail, grouse, wild turkey, raccoon and opossum. Hunting may continue for groundhogs, crows and other non-game species, and for foxes where local county laws apply.

1960 Boating Activity Summary

During 1960 - - - the first year the state's boating safety act was in force - - - a total of 72 boating accidents were reported. These resulted in 23 deaths, 28 injuries and property damage amounting to $28,661.00. Since 1960 was the first year in which boating accident reports were mandatory there is no basis for comparison with other years.

Wildlife protectors checked 41,807 boats in operation, made 1,519 prosecutions resulting in 1,480 convictions. During the same period fewer than 38,000 boats were registered under the boating safety law.

Twenty-three fatalities among 38,000 registered boats does not compare favorably with eleven fatalities among nearly 400,000 licensed hunters. The Wildlife Commission plans increased boating safety education and enforcement if and when funds become available.

Farm Game Planting Materials Available

The Wildlife Commission's nurseries have produced the following farm game habitat improvement planting materials for free distribution to farmers and cooperating sportsmen: 1,195,000 multiflora rose seedlings; 9,000,000 shrub lespedeza seedlings; 18,600 pounds shrub lespedeza seed; 22,400 pounds sericea lespedeza seed, and 97,500 pounds annual food-seed mixture. Applications for materials may be made to the Commission's office, Box 2919, Raleigh, district SCS offices, county extension agents or district biologists. Materials are free of charge, and will be available on a first-come-first-served basis.

March 19-25 National Wildlife Week

The National Wildlife Federation has announced the week of March 19-25 as National Wildlife Week. The theme this year is "Multiple Use—Balanced Conservation Planning for the Future." The week, first proclaimed in 1938 by President Franklin D. Roosevelt, is intended to call the nation's attention to the need for wide use of our natural resources. State Chairmen for North Carolina this year are Fred Norman, Elkin, and Rod Amundson, Raleigh. Governor Sanford will designate Wildlife Week in North Carolina.

CONTROLLED BURNING —A Management Tool

Wildfire is a fearful enemy to both forests and wildlife, but fire under control can be as beneficial as wildfire is destructive. This important article describes the role of controlled burning in producing more wildlife.

by James P. Brown

Supervising Forester

Photos by Jack Dermid

WILDFIRE, sweeping through the forest and scorching everything in its path, is one of the most destructive forces of nature. Yet, under control, fire can be used as an effective and economical tool for producing better food and cover conditions for some species of wildlife. And controlled fire can be used to protect the forest from wildfire.

Foresters use the term "controlled burning" to describe the use of fire under such conditions of weather, vegetation, and supervision that they can obtain a clean burn of unwanted ground cover without damage to growing timber.

Why Burn the Ground Cover?

The litter that accumulates beneath stands of longleaf pine is often inches thick, if not occasionally swept clean by fire.

Also found in the Coastal Plain and Sandhills of North Carolina is a wire grass and turkey oak combination, which typically remains in this complex for many years. Underneath the turkey oak is a rough tangle of wire grass and leaves.

This tangle provides homes for a great number of cotton rats—one of the most destructive enemies of nesting quail. And predators that follow the cotton rats, such as red and gray foxes, also prey on quail.

Seeds falling into a thick mat of pine needles or wire grass are lost to quail—unless they are hungry enough to search diligently for a small return.

And from the standpoint of the forester, he can expect a wildfire raging through a forest covered with accumulated litter to be much more damaging to the trees than if there is only a light covering.

Controlled burning must be done with care. Not all forests in the Coastal Plain and Sandhills need this treatment, and the time must be chosen with close attention to humidity, wind velocity, and density of cover. Just as no physician would give all patients the same treatment, neither does the forester prescribe burning for all forests. Fire can be an effective treatment, but accurate diagnosis must be followed with skillful application.

Manipulating the Environment

Wild animals require several different types of habitat. Resting cover, feeding and browsing areas, nesting sites—each species has its own needs for each type of environment. Controlled burning can

This series of photos shows controlled burning at the Sandhills Wildlife Management Area. First, a safety lane is plowed . . .

. . . around swampy areas to preserve them for wildlife. When weather conditions are safe, a backfire is set on upland . . .

be a valuable tool in manipulating the environment to provide some of each type.

One method of providing the necessary variety of cover types is to lay out the area in blocks, burning in a checkerboard pattern over several years. Under conditions typical to the Sandhills area of North Carolina, each area would be burned once every three to four years.

Working on a four-year cycle, the checkerboard pattern produces areas of escape cover, nesting cover, roosting cover for upland birds, and weed seeds and browse for upland game and big game.

Controlling Plant Succession

Plant communities develop in a series of stages, or succession, that begins with bare ground and culminates in a self-sustaining, or climax vegetation.

On well-drained soils in the Coastal Plain and Sandhills, the succession begins with mineral soil, followed by weeds and grasses, broomsedge and wire grass, longleaf pine and finally, oaks and hickories. In the poorly-drained soils, climax vegetations will vary, but the typical end result is a mixture of oaks.

On well-drained soils, a special situation applies to many acres of Coastal Plain and Sandhills lands. The turkey oak - wire grass combination poses an effective barrier to longleaf pine seeds. When no fire is permitted, this complex will be maintained almost indefinitely. If fire does clean out the tangle of wire grass, then longleaf pine seedlings may germinate and thus a "fire climax" of longleaf pine forest develops. The pines are eventually replaced—if fire does not intervene—with other oaks and hickories.

In controlling cover for game, usually we are dealing with the early stages of succession—bare ground through the young pine stages.

When controlled burning is applied to the early stages, the usual result is to set back this succession by one stage. Thus a broomsedge field will revert to weeds. Longleaf pine can withstand some fire, and the effect of controlled burning is simply to reduce excessively dense ground cover.

Improving Browse for Deer

Many an old deer hunter will tell you, "Deer follow the ax." Much of the spread of deer in North Carolina has come following heavy logging. Likewise, forest fire is often followed by denser growth of browse, with tender young shoots springing up from burned saplings—a happy situation for the deer, perhaps, but a serious loss for the forest owner.

Controlled burning in the Sandhills for big game can create the same situation of improved grass and browse, but without the permanent damage to the forest that often results from wildfire. By opening the forest, both the openings and the margins around them will offer food and cover for big game.

Controlling Parasites

Wildlife, like other animals, are subject to many diseases carried by parasites—and the parasites themselves are often detrimental to the animals.

While domestic animals can be treated effectively by applying drugs and pesticides, wild animals cannot be easily captured for treatment. One added advantage of periodic controlled burning of game habitats is sanitation, the removal of parasites.

Brown spot is an important disease of longleaf pine. Seedlings in the grass stage become infected and many are killed. Periodic burning appears to be the most effective method of controlling this disease in the Sandhills.

Controlled Burning in Marshlands

Burning of marshlands and wetlands in eastern North Carolina has been practiced for many years.

. . . ridges of pine and turkey oak. The backfire prevents the main fire from getting out of hand. Here, the two fires . . .

. . . come together. In a successful burn, ground cover is reduced without damaging trees or creating an erosion problem.

When properly directed and properly timed, these fires create better habitat for ducks and geese, speed up production of food for waterfowl and furbearers, and make trapping easier. And, as with forests, controlled burning lessens the severity of wildfires in the summer.

Ideal marsh conditions are usually somewhere short of the climax vegetation of woody shrubs. Applied at the right time, controlled burning can stimulate growth among desirable perennials by burning them back to a point above the roots. In dense stands of woody shrubs, better habitat for waterfowl and furbearers can be gained by root burns. These fires, during dry periods when roots are exposed and the peat is dry, will kill off the climax vegetation and provide open water by burning deep holes in the peat of the marsh floor.

A Word of Caution

In management of wildlife, controlled burning has a definite place. When prescribed at the right time and under the right conditions, it can be useful in improving game habitats without serious damage to some forest. Uncontrolled, fire is as serious a threat to wildlife as to the trees of the forest. Before attempting a controlled burn yourself, first consult your district game biologist and your county forester.

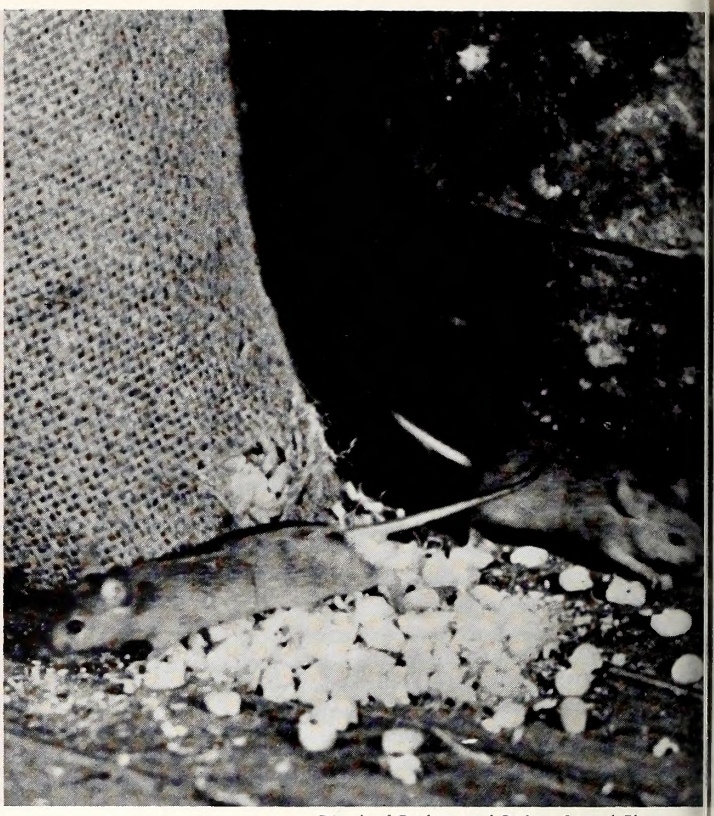
A rabbit with smoke in his eyes. Wildlife can easily escape the slow flames of controlled burning. Nearby cover is saved.

Besides reducing the chance of wildfire, this burn at Orton Refuge will open up the marsh so that it can be used by ducks.

Wildlife's FIFTH COLUMN

by Rew V. Hanson
Animal Control Biologist
Branch of Predator and Rodent Control
North Carolina State College, Raleigh

Here are the facts and philosophy behind modern predator and rodent control and how you can obtain help if animal pests raid your crops, livestock, orchard, or home.



Branch of Predator and Rodent Control Photos

A young boy, terrified by the rabid fox that had attacked him, ran screaming to his home in Bladen County. An apple grower in Wilkes County was shaken to learn that pine mice had destroyed nearly half of the trees in his thirty-acre orchard. In the peat area of Dare County, foresters were distressed when they realized marsh rabbits killed as much as 72 percent of the three-year-old seedlings used in timber plantings. An Anson County farmer stood wide-eyed as clouds of blackbirds descended on his milo field.

These are a few representative samples of the many pest damage problems which occur in North Carolina, as well as over the entire nation. People with pest problems such as these may write or call upon the Branch of Predator and Rodent Control of the United States Department of the Interior's Bureau of Sport Fisheries and Wildlife, State College Station, Raleigh, North Carolina.

The Branch helps organize programs and recommends methods to control damage done by misplaced or excessive numbers of some species of animals, acting in cooperation with North Carolina Extension Service and other public and civic organizations. This agency's job could be compared somewhat with a farmer weeding his field. Actually, a weed is an unwanted plant only because it is in the wrong place. Likewise, a skunk is a worthy animal but most of us do not want him living under our house or rooting up our lawn in search of insects.

The Predator and Rodent Control Branch assists in establishing pest damage control programs as a result of specific economic loss, disease threat, or game management problem. Because it is a wildlife conservation agency, all wildlife aspects of a problem are considered before corrective measures are recommended or taken. Its practice is to carry on control programs only in cooperation with interested agencies, groups or individuals; independent action is avoided.

Harmony in Nature?

Some people, individually or in groups, profess an objection to any attempt at regulating wildlife populations. Because of this thinking the operations of the Branch of Predator and Rodent Control are sometimes controversial. The purist dreams of a state of wildlife in perfect harmony and balance with each other, but actually our wildlife lives in a constant state of turmoil, usually destined for death by violence, starvation, or disease, with or without man on the scene.

Vegetable-eating species compete with all other vegetable eaters for food and shelter, and the ones that survive this competition become food for the flesh eaters. Consequently, there is never harmony, and individuals are constantly being eliminated and replaced by others, now, and since the origin of life on this planet.

The dinosaurs and other early forms lost out in the competition of a constantly changing world even before man entered the picture. Now man is accelerating this competition by building cities and highways, harvesting forests, plowing grass land and overgrazing the remaining grasses. Fields are

planted to crops that produce much more or better food for some species than was previously available.

Good or Bad Wildlife

Depredations, disease, and nuisance values are relative conditions in wildlife, and without man no species is "good" or "bad." Only as these species or individual animals affect human interests at a particular time and place are they judged to be good or bad. This conflict of interests between man and wildlife, wild species and other wild species, presents a complex problem to the Branch of Predator and Rodent Control.

The following is a quotation from an article by Dr. Walter E. Howard, vertebrate ecologist of the University of California:

"The chief reason that rodents, coyotes and other predators become pests is that man alters (upsets) the 'balance of nature.' Man affects field rodents primarily by changing the physical factors of the soil and vegetation of rodent home ranges.

"The density of coyotes and other predators, on the other hand, is largely determined by the numbers and kinds of predators already there and the availability of food—rodent density, in this case. Thus, the habitat decides how many rodents will be present, which in turn determines the density of the predators. (All animals can increase only to a certain maximum density, regardless of availability of food.)"

When thought of in this light, predator and rodent control is a logical, practical and essential practice. Maybe we can get a clearer view of it through the following comparisons.

Foxes provide excellent sport and help maintain the balance of nature, but when overabundant they can be a source of rabies and a menace to valuable livestock, pets, or health.

The farmer evaluates the carrying capacity of his farm and determines that it will sustain a certain quantity of stock. He controls the stock, and makes his profit by harvesting any surplus over his capacity. In so doing he is operating his unit at peak efficiency. Should this carrying capacity be exceeded his returns will diminish accordingly.

In the wildlife field, game management agencies control the populations of desirable game species by manipulation of hunting seasons. To let game populations exceed the carrying capacity of an area is the beginning of diminishing returns for that area.

Animals in the pest category do not have an attractive market value; they are a poor source of food, and with the exception of the fox and coon, they have little if any sporting value. Since they are not in demand, a different type of control must be practiced on these species.

Rabies in the Fox Population

The recent outbreak of rabies among the fox population of Bladen County resulted in several human exposures and much lost livestock. At the request of the County Health Department, the Branch of Predator and Rodent Control sent a representative to help relieve the situation. After surveying the situation, recommendations were made to carry on a county-wide trapping program in order to reduce temporarily the fox population.

The only way to stop a rabies epidemic is to break up the chain of transmission since it is spread directly by bite, through the saliva, from one animal to another. In North Carolina, the fox is the main carrier of rabies. To thin the fox out in an epidemic area is comparable to the use of fire-guards or backfires in controlling forest fires.

The county hired a man to carry on trapping demonstrations in the county. This man was thoroughly trained in the art of fox trapping, and in the demonstrations of such, by the Predator and Rodent Control representative. Trapping demonstrations were held throughout the county where interested parties wanted to help stamp out rabies. At the demonstrations, traps were issued to those cooperating. These traps were owned by the county and loaned to individuals for the purpose of reducing the fox population.

The Branch representative carried on the demonstrations throughout the county, while training the local man hired by the county. When this man was finally trained, the program was handed over to

The pine mouse seems harmless enough. He is until he sets up housekeeping in orchards.

Pine mouse damage is often undiscovered until a tree dies from underground girdling of its roots.

Photo by Jack Dermid

When hordes of blackbirds descend upon a field of milo or other grain crop, damage could be severe unless effective measures are taken to chase them away. It takes more than scarecrows.

him, and he continued the trapping demonstrations and also did some trapping of his own in trouble spots. The Branch of Predator and Rodent Control kept in touch with the Health Department officials who administered the project, and in a very few months rabies incidents were greatly reduced and finally eliminated. The residents breathed a sigh of relief.

Pine Mice Destroy Apple Trees

Pine mouse damage to apple orchards of North Carolina during the past year has been severe. As an example, nearly 50 percent of a 30-acre orchard in Wilkes County was badly damaged or killed recently. The pine mouse lives underground and feeds on the roots of plants. We do not have an efficient, simple technique for pine mouse control at the present time, but we are carrying on tests with a mechanical baiting device which shows great promise. In effect, it forms and baits an artificial burrow which intersects the natural burrows. With this device, about 20 acres of orchard can be baited each day compared to 4 or 5 baited by hand.

Marsh Rabbits versus Reforestation

Marsh rabbits have caused up to 72 percent loss in three-year-old tree plantings. This is happening in some of the peat wasteland in eastern North Carolina that is being experimentally reclaimed for the purpose of raising timber and pulpwood. Heretofore, this area was of little or no use to anyone, so the marsh rabbit was no problem. This rabbit is not to be confused with the sporting little cottontail or even the swamp rabbit. The marsh rabbit has many peculiar habits. Hunters with dogs have witnessed their dogs running trail all day without the hunters getting a shot or even a glimpse of the rabbit. The reason? The marsh rabbit sneaks through cover when pushed rather than dashing away to other protection. He is also more calm and easy going, thus is not prone to spook. He has no aversion to water and is a good swimmer. One peculiar trait is that he often walks like a dog in preference to hopping as a rabbit should.

For these reasons the marsh rabbit is not popular or sought after by the sporting rabbit hunters. Further study is needed before a satisfactory control technique can be established.

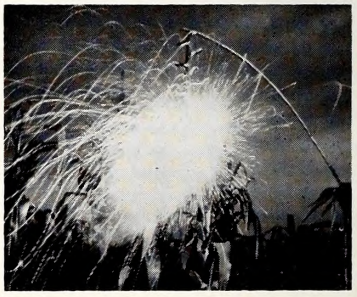
Hordes of Blackbirds

Milo crops in Anson County were protected from hordes of blackbirds by quick-thinking farmers who took action at first sign of trouble. The use of scare devices prevented the birds from getting entrenched and ruining the fields. A demonstration of the various devices was held in the county by a Branch representative at the request of the local county agent. The many farmers present were very interested in their availability and the proper use.

The Branch of Predator and Rodent Control can help you in your pest problems by recommending the most desirable and efficient method to fit your particular problem. Pest control is an essential practice, but it should be carried on in the most efficient and safe manner possible.

Until recent years many of the pest problems had to be considered as necessary evils and tolerated, for lack of effective control methods. Today, with few exceptions, many are tolerated only by choice.

Many techniques have been developed to control animal pests. At right, firecracker rope explodes to frighten marauding deer. Below, a gas bomb is discharged in the burrow of a groundhog that has become a problem.



The Skipper

Conducted by Duane Raver

IMPROPER loading crops up in the boating accident statistics with frightening frequency over the years. Yet relatively little is thought about it until too late. Generally it means simply overloading the craft. It can mean an unsafely trimmed boat, one that is unbalanced with poor load distribution. Let's look at the overloaded boat.

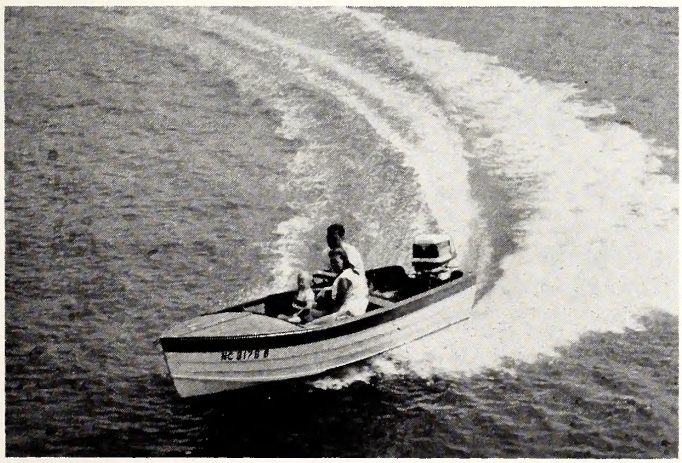


Photo by Jim Lee

There is more to properly loading a boat than simply tossing your gear aboard. Poor load distribution or overloading can mean a loss of speed, a rough ride, or even a fatal accident.

How much will a boat carry? Obviously a clear-cut answer which will prevail under all circumstances is simply not available. Wind and water conditions usually alter each case. Where the load is placed in relationship to the center of gravity has a great deal to do with it. In other words, stay on the light side of the boat's normal or rated capacity and then take into account severe water conditions even though you hope they don't occur.

In outboarding, the engine weight is (by necessity) pretty high out of the water; its center of gravity is a good bit higher than an inboard of similar weight. Also the weight is far aft. To compensate for these unbalancing effects, the passengers and gear should be as low in the boat as practical and forward far enough to trim the craft properly. Keep in mind the tendency of the outboard to "squat" on takeoff before it planes.

Plenty of freeboard is one key to safe loading. Not only when the boat is at rest, but at top speed, in tight turns and when the going is rough. The rated weight capacity for boats whose manufacturers belong to the Outboard Club of America is clearly shown on the stern plate along with the horsepower rating.

Come Aboard

Sometime when you've nothing better to do, and are around a busy docking area, watch passengers boarding for a few minutes. If it weren't so serious, it would be down-right funny. Of course you'll soon spot the experienced safe boaters; and just as quickly the uninitiated will make themselves known. If the boat was launched without the motor, check on how this comes aboard.

The time-worn cartoon of the skipper, outboard in arms, with one foot on the dock and the other foot on an outbound boat, may be re-enacted right before your eyes. Actually the best and safest way to lift a motor aboard is also the easiest.

If the boat is beached, the problem is minimized to begin with. Pull the stern up on the beach a foot or two, cock the motor mountings at about the right angle and ease the motor over the stern. An 18 horsepower outboard is about all you can handle in this manner.

If the boat is docked, and assuming the bow is pointed to your right as you face the dock, proceed like this. First, make sure that the boat is tied snugly and firmly, or better yet have someone hold the craft steady for you. Place the motor on the dock, top to your right, propeller down. Take a firm stance just forward of the rear seat and grasp the motor with both hands. In a rolling motion, lift the motor onto the seat. The propeller is now up, the mounting bracket down, motor top still to your right or pointing toward the bow. Ease the propeller end over the stern, engage the mountings and tip the motor up into place.

As it's described, it sounds a bit complicated. Practice will smooth it out and the key is slow, steady movements. The last thing you will always do is fasten the safety chain securely and tighten the stern screws. After a few minutes operation, these screws should be checked again.

WARM DAYS OF EARLY SPRING BRING FISHING

Fun With Crappies

by Duane Raver

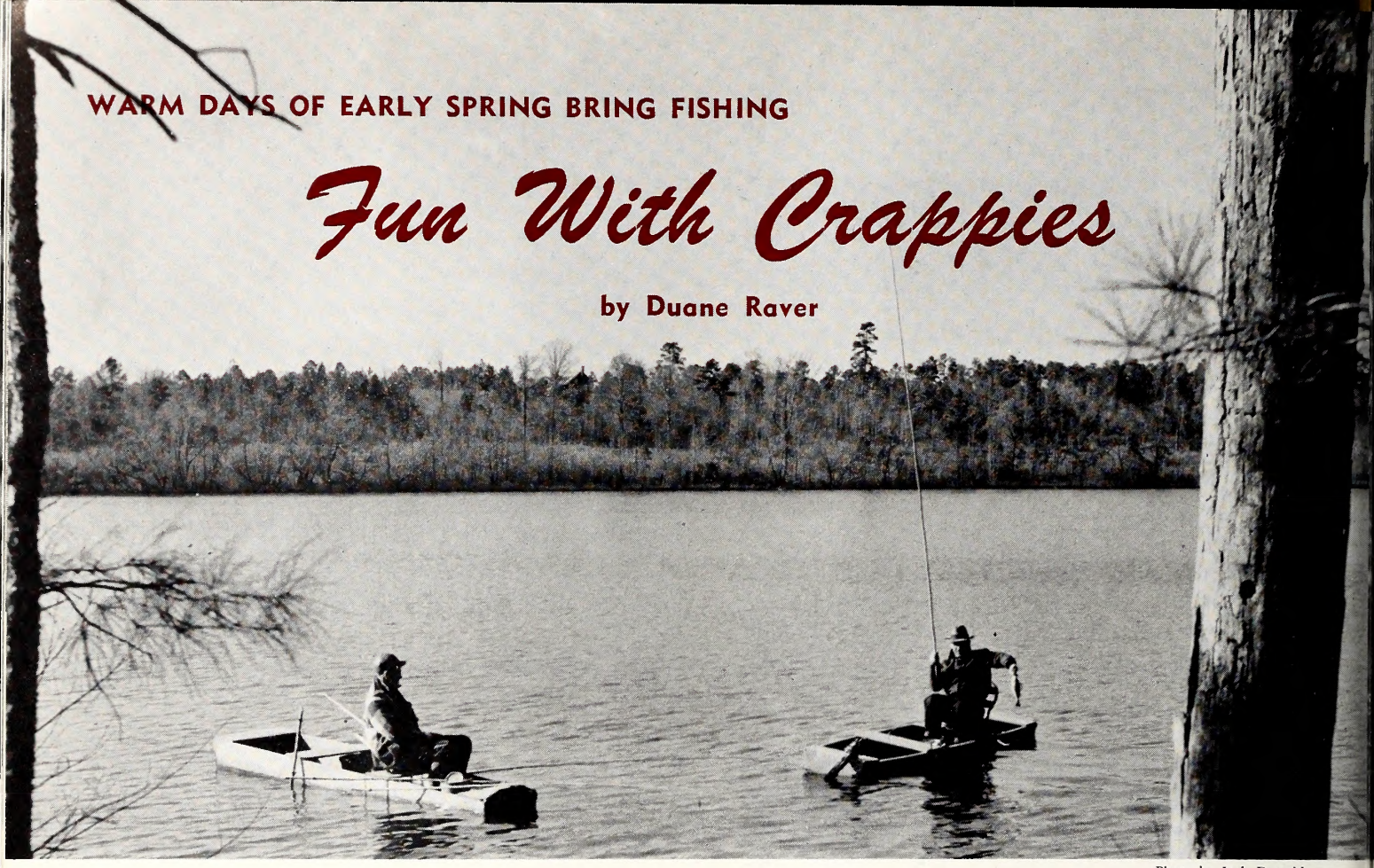


Photo by Jack Dermid

WHATEVER else you may say about the crappie you'll have to admit that he does furnish a lot of fishing when many of his more sophisticated cousins are mum about the whole thing. If you won't settle for less than a slashing strike, a smoking run and a twisting leap, better pass up the crappie. But for homespun, solid fishing, this silver and black panfish will keep you interested and well-fed 'most any time you beckon.

To argue that he is a spectacular scrapper is futile. Big ones do hit hard and throw their weight into the fight; but not for too long. Light tackle helps bring out the best in the crappie and may well change your opinion of him altogether.

Controversial Fish

Few fish meet such drastically different views from fishermen than does the crappie. Many simply won't have one thing to do with him; the fishery biologist turns thumbs down on him in small ponds and lakes; the bass fisherman cusses him when he hits a big plug meant for a bronzeback.

On the other end of the pole, the mid-winter and early spring angler heaps praise on his head and takes home strings of the good-eating panfish. The mid-summer vacationer is thankful for him when the crappie rescues an otherwise fishless outing by biting when nothing else will.

So it goes. Actually the crappie isn't all saint or sinner and probably has a place in large lake and reservoir management. There isn't much question, however, that crappies should *not* be stocked in small ponds. There simply isn't such a thing as a few crappies. Their tendency to over-populate the habitat and become stunted is far too great to take the risk of stocking them.

Crappies (both white and black) are with us, and one of the best management procedures known is heavy fishing and harvest. Spring is the ideal time to catch crappies. They generally hit in advance of the bluegills and bass, and congregate in large numbers so that once they're located, catching them is almost automatic. A glance at the fishing regulations will show you that creel limits on crappies are very liberal.

Although the crappie is often cooperative through much of the winter, the first warm days of spring send him in search of spawning sites. It's now that the best catches of the year are made. The crappie is notoriously lazy but manages to fan out a semblance of a nest near a submerged log or brushy weed bed. The nest does not approach that of the bass for neatness and often several fish will deposit eggs in the same general area. The male crappie assumes his duties like a good parent and is ready to drive out any intruders.

The scurrying activities of a group of spawning fish are often reflected in boiling swirls on the water's surface in the shallows. A minnow, small jig, spinner or almost anything that moves, will be met with open mouths. The struggle as well as the strike seems a bit more spirited in the spring.

Photo by Duane Raver

Perhaps it's the spawning activities or the cool water that inspires the crappie. It's not unusual to take a dozen fish from one small spawning area. Actually it's rather difficult to scare them off even with a struggling fish on the line.

Fishing Technique

The cane pole has an imposing group of enthusiasts in this type of crappie fishing. The pole is often 10 feet long, fairly limber, equipped with stout braided or monofilament line, a red and white bobber, one small split shot, a single bait hook (usually too big) baited with a two-inch shiner. The biggest mistakes are the use of a hook that's too large (a number four is plenty big), the hook isn't sharp, and the sinker is too heavy. Refinements that mean more fish and more sport can be made in any tackle.

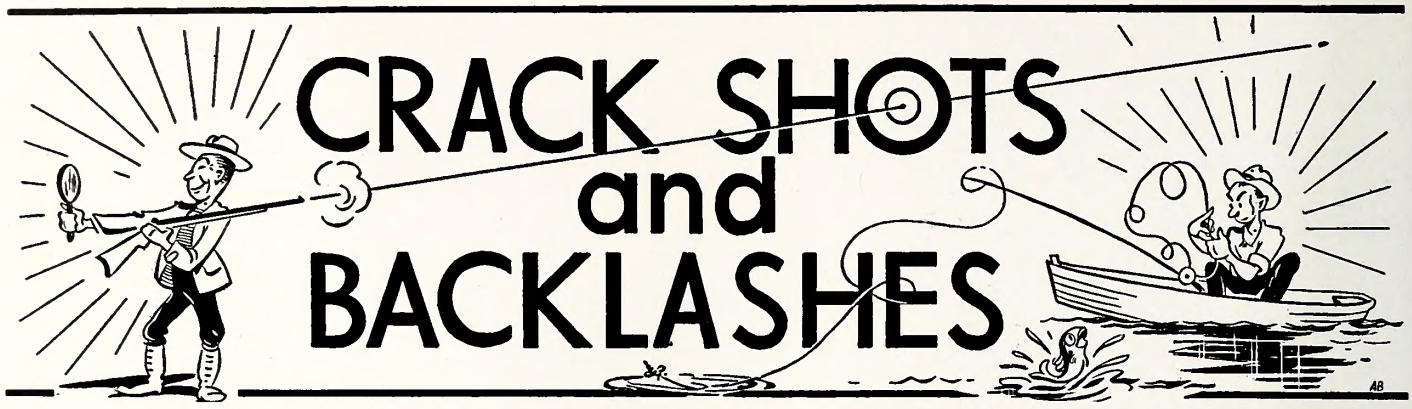
The transition from the cane pole to the flyrod is a rather natural one and may yield you more fishing fun. If you stick to live bait there isn't much point in using a regular flyline. You can substitute a bait casting reel with braided line or a light fly reel with monofilament or braided line. Casting is no problem unless you switch to flies. And often a small white streamer can be real effective for crappies. Try one tied with maribou feathers for enticing action. The flyrod then can well serve two purposes: that of a bait fishing rod, and in actually fly casting for crappies.

Spinning tackle may not seem comfortable to you in presenting bait to crappies. For offering them the tiny plugs, spinners, and jigs that excite them at times, it's perfect. One tip on the use of artificial lures for crappies, be they flies, plugs or whatever: use a slow retrieve. Keep the lure moving just enough to bring out the action and/or keep it off the bottom. Remember the lazy aspect of the crappie's nature; he simply won't go far or fast to get a meal. This is a tipoff to select lures having good fishy action even at slow speeds.

Where to Go

In addition to many Piedmont and Coastal Plain millponds, several lakes and reservoirs stand out as consistent crappie producers. Lake Phelps still has some big crappies around, although they apparently aren't numerous. Lake Waccamaw, particularly the section around Big Creek, can get really hot on crappies. High Rock has them by the millions, but they are notoriously small. Pounders are caught, but the average size is probably less than a quarter of a pound. Lake Hickory produced beautiful strings of crappies in the spring of 1960 and kept right on almost all summer. It should be another good year on Hickory. Fontana may have slipped a notch or two in crappie production, but they are still there in great schools.

Of course there are plenty of other spots that are fine fish producers, but the ones mentioned will serve as starters. The time to catch crappies is now —let's go fishing!



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Rep. Herbert C. Bonner, Washington, N. C., author of the Federal Boating Act of 1958—the so-called Bonner Bill—received the 1961 Ole Evinrude Award recently for his "outstanding contributions to recreational boating."

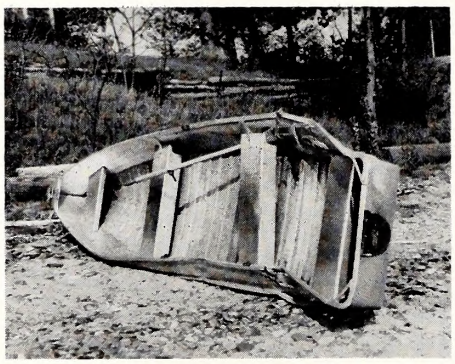
Presentation of the award was made by W. J. Webb, a life-long friend of the late outboard motor pioneer, Ole Evinrude, for whom the citation is named. Webb, vice president and division manager of Evinrude Motors, Milwaukee, termed the work of Rep. Bonner, "the most constructive effort yet rendered on behalf of uniform boating legislation and the single most important step toward an effective program for small craft registration."

The 1961 Ole Evinrude Award is a hand-wrought Steuben crystal centerpiece with a dolphin motif. It is made annually by the Evinrude Boating Foundation and carries a $1,000 cash grant to individuals or organizations whose activities in the field of recreational boating are considered of major significance.

Mr. Webb lauded the Bonner Committee for the scope of its testimony and for the "cooperative manner and spirit" with which it worked with numerous public and private organizations.

By its definition, the Federal Boating Act aims "to encourage uniformity of boating laws, rules and regulations among the several states and the Federal Government to the fullest extent practicable, subject to reasonable exceptions arising out of local conditions. In the interest of fostering the development, use and enjoyment of all the waters of the United States, it is further declared to be the policy of the Congress hereby to encourage the highest degree of reciprocity and comity among the several jurisdictions."

It is generally agreed by those in the boating community that the Bonner Bill has effectively led to the establishment of uniform boating legislation as opposed to a welter of conflicting state and local laws governing the sport. To date, 38 states have enacted laws consistent with the federal act.



Do we need boating laws? This outboard was hit by a speeder, and two drowned.

Specifically, the bill provides for the numbering of "every undocumented vessel propelled by machinery of more than 10 horsepower" using the navigable waters of the United States. These boats are to be numbered either by the federal or state governments, in the latter instance by those states with legislation consistent with the federal program. In its emphasis on safety, the Bonner Bill makes it illegal to operate a boat in a negligent or reckless manner and requires the compilation of nation-wide accident reports for study.

"Representative Bonner and his committee have rendered a meaningful contribution to boating," Mr. Webb said. "The industry, boating organizations and individual boatmen can be thankful for a federal law whose concept is in the interest of responsible, safe boating practices."

Taking A Leading Role

North Carolina ranks fourth in the nation in the amount of water available for fishing, and in total water for boating probably ranks at or near the top. Tarheelia was among the first states to get a boating safety law and get it into operation.

We have a good boating safety law—good enough to be used as a pattern by several other states, but it needs improvement. Under the present setup there simply is not enough money to enforce the safety provisions of the law as they could be enforced; not enough money to hire adequate personnel to patrol our tremendous expanse of boating water.

The Boating Safety Act wisely prohibits the use of wildlife conservation funds for boating safety activity, and prevents the use of boating safety funds for wildlife purposes. This greatly restricts the amount of time wildlife protectors may spend in purely boating safety prevention activities. Nevertheless, almost everyone agrees that a tremendous job of enforcement has been done.

The handling of boat registration and the accounting for registration fees has been handled efficiently, and a comprehensive boating safety education has been carried on.

Although there are no past records by which to make a reason-

able comparison, our boating accident rate is much too high. It will remain high until there are sufficient facilities for carrying out the provisions of the boating safety act.

Nationwide boating safety activity has been stimulated and put into action largely through the efforts of an outstanding Tarheel, the honorable Herbert Bonner. By the same token North Carolina should lead the nation in a sound and energetic boating safety program.

One of the first major appointments announced by new Governor Terry Sanford was that of Director of the Department of Conservation and Development. Governor Sanford watches here as Superior Court Judge L. Richardson Preyer administers oath to Hargrove Bowles, Jr., of Greensboro, who will head the important agency.

Bullets Can Travel

DEAR SIRS: During the past twenty years I have been fishing and hunting on numerous rivers and lakes in this state, and others, too. But there is one factor which often detracts from my enjoyment of being out on the water. That is the rifle—usually a .22—being fired by someone out of sight up the shore. As the bullets whine by, I can easily imagine what one of them would do to me, or to some other unlucky soul, if it happened to pass through the spot where that person was sitting—or standing!

Louisiana has a law that prohibits the firing of rifles on or near lakes or rivers. I don't think we have such a law in North Carolina but I would certainly vote for one if I had the opportunity. I have seen rifles being fired at snakes and turtles, the bullets whining off down stream where other people were fishing. And I have come close to being on the receiving end several times. In South Carolina a man was shot through the head while in a boat near the Edisto River. The bullet came from a .22 a full mile away, and out of sight. The person who fired the rifle didn't know he had killed a man.

Of course, the rifle is just as dangerous on dry ground. Perhaps, instead of more laws, we need more and better instruction on the use of rifles. Many parents seem to think their son's small rifle is a toy. They should see the hole a bullet from such a rifle makes in either a board or an aminal—even at long range! J. M. JENKINS, CASTLE HAYNE, N. C.

DEAR MR. JENKINS: You are right to believe the 22-caliber rifle is a dangerous weapon in the hands of an irresponsible person as well as someone who little recognizes the potential force of such a bullet when fired.

To offset behavior affecting the sportsmen of our state, the Commission provides training for all people interested in safe and proper use of guns and rifles through certified Hunting Safety Instructors, so identified by the Commission and the National Rifle Association. At the present time we have 400 hunting safety instructors. For further information you may contact your local wildlife protector or write directly to us about this program. WILLIAM L. HAMNETT, WILDLIFE EDUCATION REPRESENTATIVE.

Feeding Songbirds

DEAR SIRS: The inside front cover of Wildlife for December shows "An exhausted towhee, weakened by his fight for survival in a world suddenly blanketed with a foot-thick cover of snow . . . in search of food." The caption to the pictures concludes, "Giving weaker songbirds a helping hand during winter is a source of vast satisfaction, but is it desirable for wild game species?"

On the back cover of the same issue is shown an illustration of a window feeding station, with this comment: "Songbirds often need help in winter. Maintain a window feeding station. The birds will repay you with pleasure."

The entire back cover of January 1961 issue is devoted to means by which we may help quail survive and multiply.

Now, are you for helping animals or are you agin it? ULMONT IVES, RALEIGH, N. C.

We're fer it. Usually there is plenty of food for wildlife in the winter months. In situations like the heavy snow and ice of last March food is hard to find. Although the Wildlife Resources Commission encourages people to feed game under such circumstances, it could not possibly provide emergency food on a statewide basis. North Carolina has more than 150,000 farms. One dollar's worth of food per farm would amount to an important chunk of money. We believe in emergency feeding of wildlife, but let's keep it on a voluntary, philanthropic basis. By the way, if you're interested in feeding songbirds, there is a new Commission publication, "Winter Birds in Your Backyard," that contains helpful information on feeders and the birds that use them. The 20-page booklet is free.

The Safest Color

DEAR SIRS: Please help me, or solicit help for me, with my problem:

Despite several articles to the contrary in several outdoor magazines, I have concluded, by personal observation, that a flame red jacket gives more protection, by visibility factor, than the accepted yellow. With this conclusion, I determined to dye my deer parka accordingly. With this decision, I decided to use the luminous type, similar to the paint used on certain casting plugs. While my home town boasts loudly of its progress and modernity, it has yet to produce a supplier of such dye.

Can you confirm my choice of color, and can you, if in agreement, put me on the track of a source of such dye? I will be eternally grateful. H. C. BREWER, JR., WINSTON-SALEM, N. C.

Flame yellow-orange would probably be better than red. Such textile firms as Burlington Mills might give information on such a dye, as might also Olin Mathieson Chemical Corp., East Alton, Illinois.

PROTECTOR OF THE MONTH

Horace A. Cohoon

The Perquimans County Wildlife Protector, Horace A. Cohoon, was born near Columbia in Tyrrell County. He graduated from Columbia High School in 1947, and served as a military policeman in the U. S. Army from March 1950 to 1953, serving in Tokyo for one year. He was employed with the North Carolina Wildlife Resources Commission on February 1, 1954, and has attended four training schools for wildlife protectors at the Institute of Government in Chapel Hill.

Horace is the son of Mr. and Mrs. Otis B. Cohoon of Columbia, and is married to the former Nanette Jones of Tyrrell County. They have two daughters, and are members of the Baptist Church in Hertford.

ENFORCEMENT RECORD FOR DECEMBER

HUNTING & FISHING:	
Persons checked	31,573
Total prosecutions	686
Total convictions	651
Total cases not guilty	27
Total cases nol prossed	8
Total fines collected	$7,014.90
Total costs collected	$4,459.80
BOATING:	
Boats checked	25
Total prosecutions	10
Total convictions	9
Total cases not guilty	1
Total cases nol prossed	0
Total fines collected	$15.00
Total costs collected	$66.75

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

Hampton Marine Museum Re-opens March 1

The Hampton Marine Museum at Morehead City will re-open for the season on March 1, and State Museum Director Harry Davis reports that several new exhibits have been added. The museum, supervised by Bill Palmer, had 13,000 visitors from late July to October 1 after it opened last year. Located at the Institute of Fisheries, the museum will be closed Mondays, open from 10:00 a.m. to 6:00 p.m. other weekdays, and from 1:00 p.m. to 6:00 p.m. on Sundays. Director Davis emphasized that the museum will welcome special visits by schools. Shown are Director Harry Davis and State Museum preparator Jay Johnson of Raleigh.

Answers to the Wildlife Quiz (See Back Cover)

1. This is the *turkey* oak.
2. The *pintail.* Note the very long tail of this duck.
3. The *wood duck.* In silhouette the crest is prominent.
4. These rabbit tracks lead *toward* the brushpile.
5. The *female* bobwhite has a buff-colored throat, while the male has a white throat.
6. The smallmouth bass is found mostly in *mountain* reservoirs.
7. The average muskrat litter consists of *four* young.

A Deep Subject

DEAR SIRS: I would appreciate it if you could tell me what the current laws are in your state regarding scuba divers in fresh and salt water. Any information will be appreciated. EDMOND POLINSKI, CHICAGO 39, ILLINOIS.

None, except where fishing regulations apply.

Canadians Interested in Hunter Safety

DEAR SIRS: In the November edition of your fine magazine we noticed an item in "Resource-O-Gram" under the title "Fair Goers Safe Shooters."

We, of the Saint John Branch of the New Brunswick Fish and Game Protective Association run a fish and wildlife show in connection with the annual fall exhibition, and last year had some 17,000 people through our show.

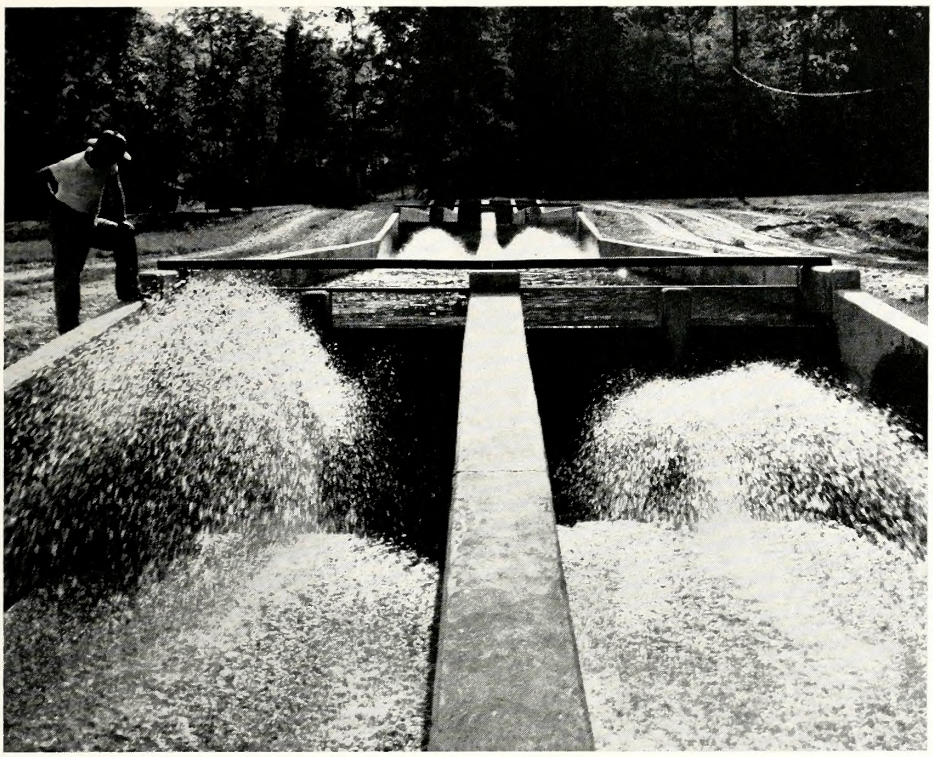
It would be most appreciated if you could outline to us just how the "Resource-O-Gram" item was conducted. Possibly you could pass this letter along to who ever set up the exhibit, and they might be able to provide us with copies of the cartoons and so on mentioned.

We are familiar with the Junior Hunter Safety Course of the NRA. Thanking you in advance, I am JAMES W. BAKER, PRESIDENT, ST. JOHN BRANCH, NEW BRUNSWICK FISH & GAME PROTECTIVE ASSOCIATION.

The exhibit contained a series of cartoons depicting various safe and unsafe hunting situations. Visitors were handed cards with numbers corresponding to those on the pictures and checked appropriate squares, scoring five points for each correct answer.

Hyde County Goose Law

DEAR SIRS: Being a goose hunter and after seeing all the geese fly in Hyde County after 4:00 p.m., who or how do we as hunters go about getting this law changed so it will be so we can shoot



During the past year, more than 300,000 legal-size trout—many over 10 inches in length—were reared in Commission hatcheries. The month of March finds the Commission's trout stocking program in full swing to provide ample fishing opportunity for anglers when the season opens April 1. Shown are the modern raceways at Armstrong Creek Hatchery, the State's newest, located off 26A near Little Switzerland.

until sunset as the Federal law has it?

Wildlife is a wonderful magazine. Please keep up all the good work as it's a lot of help to us hunters—I learn something new every issue—just renewed for two more years. L. T. SMITH, LIBERTY

The Hyde County delegation to the General Assembly is committed to having this local law repealed by the 1961 Legislature. —Ed.

An Editorial Policy

DEAR SIRS: I am a senior at Concord High School and as a part of our English course we are doing a magazine study. I have chosen your magazine as the one I want to study.

I would appreciate any help you could give me on such points as editorial policy, publications policy, advertising policy, number of circulation and history of magazine. Any printed literature would be appreciated.

I have been reading your magazine for five or six years and I think it is tops. I really enjoyed the article by Cam MacRae in the November issue. LLOYD R. BURRIS, JR. CONCORD, N. C.

Our editorial policy is stated on the masthead page (3) of each issue. Basically, it is published for the purpose of informing people of the need for Wildlife conservation and securing their active cooperation. We do not carry advertising. Our monthly circulation is in excess of 70,000 copies. The magazine was begun in its present format in 1948. Other than occasional reprints and expiration notices, the magazine itself is the only published information we have on the subject.

Misses North Carolina

DEAR SIRS: The time is upon me once again to renew my subscription to Wildlife Magazine for two years. This year, I do it with much nostalgia, since I am no longer stationed in North Carolina, and, therefore, miss greatly the wonderful hunting and fishing available to the outdoors citizenry.

For three years I was stationed at Camp LeJeune, North Carolina. I hunted and fished the surrounding areas at will, and when my wife wouldn't object too violently! The long seasons, bountiful bag, and creel limits were taken for granted as was the wide expanse and selectivity of potential hunting and fishing areas. The cordiality, cooperation, and companionship of my many outdoor associates, the farmers and land owners in particular, will long remain among my fondest memories of North Carolina.

In contrast to the foregoing, I am now in a land of plenty—hunters, I mean! No longer am I afforded leisurely hours of enjoyment, but must be content to compete with hundreds of thousands of other sportsmen, not only in the fields and streams but on the highways enroute to favorite sporting areas. For example, on opening day of the pheasant season there were an estimated four hundred thousand hunters afield. Since the season is very short, the fields are over-crowded. On opening day of deer season, an estimated four hundred fifty thousand afield, length of season, about two weeks. Oh, how I miss those long quail and deer seasons in North Carolina! The sportsmen of your state should be thankful for their many blessings. I know some of them grumble because of certain restrictions or reservations which must be enforced to provide better hunting and fishing for all the sportsmen, but I'm sure that if they were to experience the inconveniences imposed on the sportsmen in other states, they would be most happy with their lot.

It is my sincere hope that in the not too distant future, I will once again have the opportunity to share the wonderful wildlife resources available to you lucky North Carolinians! Until that day, I remain your overcrowded admirer. JOHN R. WYATT, JR. MAJOR USMC, WARREN, MICHIGAN

Thanks! And *please* come see us, hear? —Ed.

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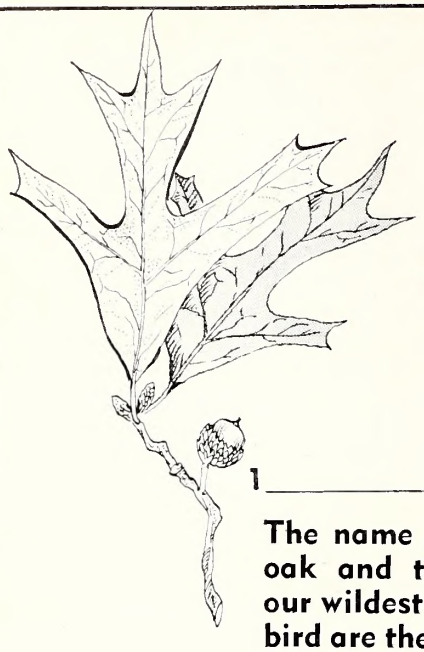
Wildlife Quiz



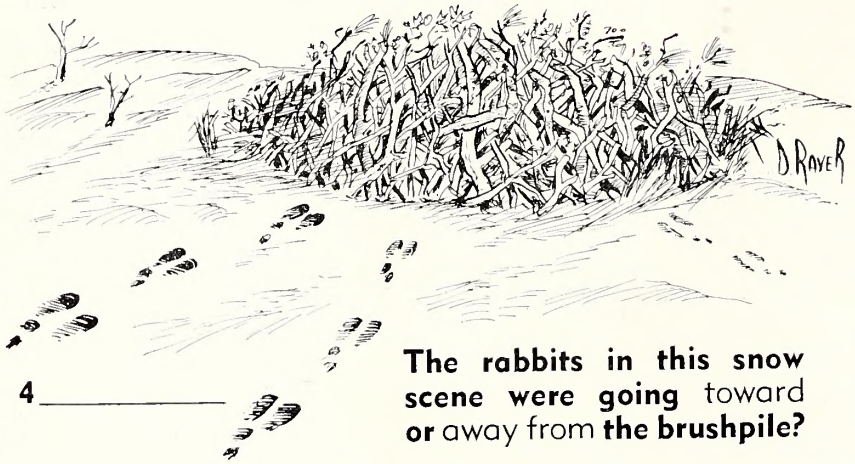
1 _____

The name of this oak and that of our wildest game-bird are the same.

2 _____

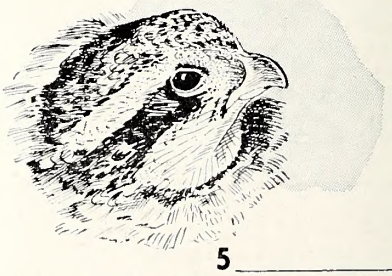
3 _____

Just from the silhouettes of these waterfowl you should know their names.



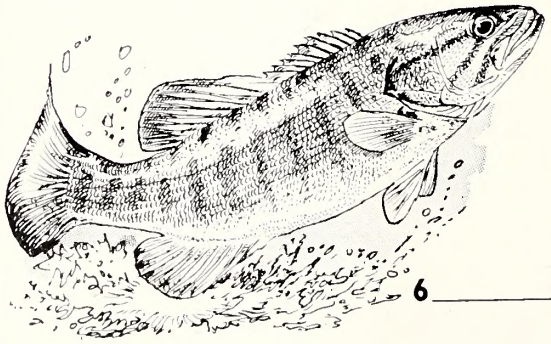
4 _____

The rabbits in this snow scene were going toward **or** away from **the brushpile?**



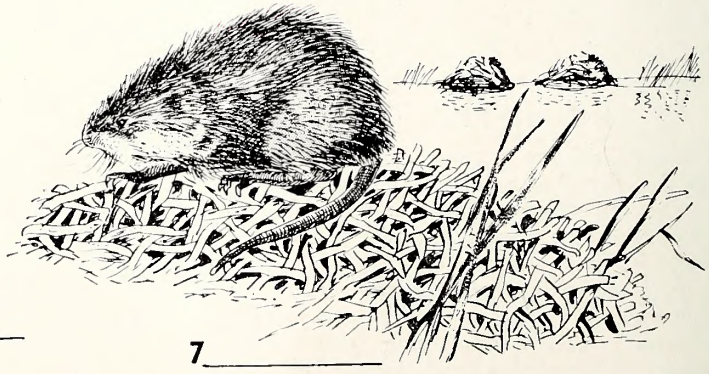
5 _____

The buff-colored throat and eye stripe tell you this bob-white is a male **or** female?



6 _____

This gamefish is most likely found in mountain reservoirs **or** coastal plain streams?



7 _____

The average number of young muskrats per litter is two, four, seven, **or** nine?

Answers on page 22

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Wildlife in north carolina

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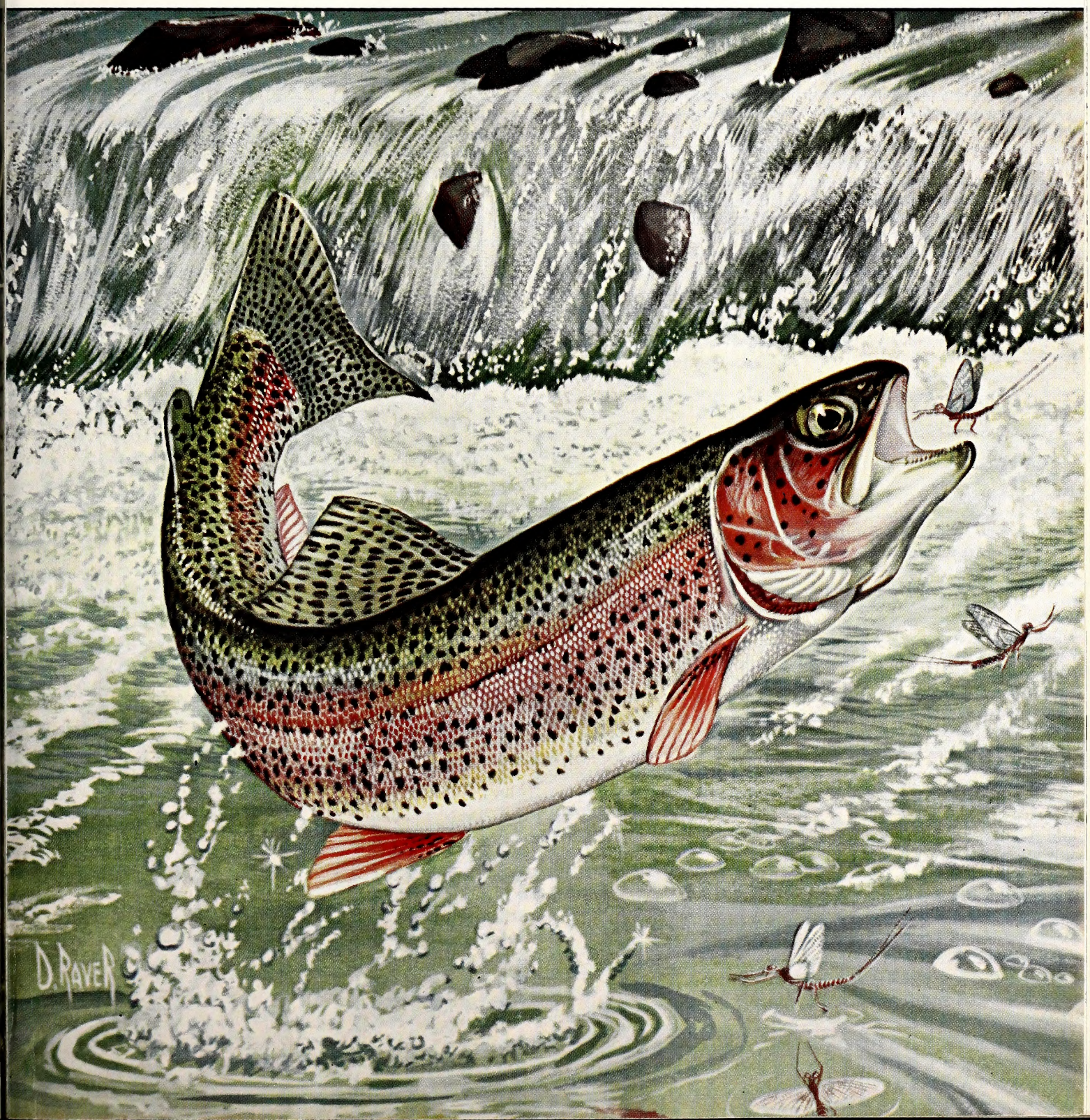

Photo by Jack Dermid

Odd Nesting Site

When the hunting season ended last year, C. E. Deans of Nash County hung up his hunting coat in a shed. Later, much to his surprise, he discovered the nest of a Carolina wren in one of the pockets. The Carolina wren, an abundant songster throughout our state, is notorious for selecting off-beat nesting sites, such as mailboxes, junked cars, flower pots, or old hats.

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

TERRY SANFORD
Governor

North Carolina Wildlife Resources Commission

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J. A. Bridger, *V. Chm.*	Bladenboro
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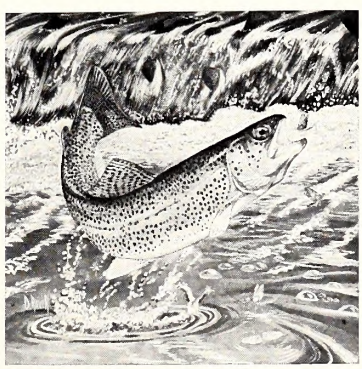


The rainbow trout that graces our April cover will be the quarry of thousands of ardent anglers in the months to come. With trout season in the mountains opening April 1 at 7:00 a.m., you have the opportunity to take your share of some of the millions of hatchery and native trout waiting for you.

The rainbow is our most colorful trout, sporting dark spots on a skin that varies from olive to red. Native to the Coast Range and Sierra Nevada mountains along the Pacific Coast, the rainbow was introduced beginning in 1880. Cover painting by Duane Raver.

Wildlife In North Carolina recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

THE price of wildlife conservation is paid by hunters and fishermen who buy the licenses that provide most of the income of the wildlife agencies conducting the conservation program. In North Carolina, sportsmen reap the benefit of one of the best wildlife programs in the United States. The cost of this program, like the cost of nearly everything else, has spiraled upward during the past few years until we are faced with serious financial problems. As the man who pays the bill, and as the man who reaps the benefits, you are entitled to know something about our problems.

Three things are considered in setting up our budget structure—the *balance on hand* at the beginning of the fiscal year, *estimated receipts* for the year, and the required *operating reserve* needed at the end of the fiscal year.

High Level of Public Participation

The receipts of the Commission have increased from $855,946 in 1947-48 to $2,496,510 for the fiscal year ended June 30, 1960. At the same time the expenditures have increased from $814,346 in 1947-48 to $2,552,552 for the fiscal year ended June 30, 1960.

Expenditures have increased as the program has been expanded and as the cost of labor, supplies and equipment has increased. Receipts have increased as the public became more sympathetic to wildlife conservation and cooperated by buying hunting and fishing licenses. With public participation at the high level it is today, the percentage of non-licensed hunters and fishermen is almost negligible from a revenue-producing standpoint. The annual increase in license sales has leveled off to the point that in the year ended June 30, 1960, the increase over the previous year was only $26,913.

Soon after World War II, when the Commission was organized, unexpended funds accumulated. These funds, plus those which accrued from underestimating anticipated receipts during the early years, established a wildlife fund balance by the mid-1950s much larger than needed for operation during low revenue months of July, August and September. In recent fiscal years, beginning about 1955 and ending June 30, 1960, budgeted expenses were adjusted to exceed budgeted receipts in order to reduce the July 1, 1960, fund balance to the $400,000 to $450,000 level necessary for the first-quarter low-income period operation and financial stability.

A Surplus Was Exhausted

When the wildlife fund budget for the year beginning July 1, 1960, was established, estimated receipts did not include a surplus item since this had been exhausted. Without this, and without expected increases from other revenue sources, it was necessary to reduce expenses and therefore services to establish a balanced budget. Reductions were made in expenses for the following important items: cars and trucks, heavy equipment, equipment operation, temporary labor, supplies and miscellaneous services.

The Commission receives the major portion of its revenue in the period from October through May. During July, August and September, there is practically no revenue. Since expenditures such as salaries, utilities, operation of equipment, insurance and other miscellaneous items come due each month, it is necessary to have a bank balance of from $350,000 to $450,000 on July 1 of each year to pay for the necessary expenses due in the first quarter, low-income period. This balance does not provide an emergency margin of safety for any major change in the country's economic structure or for any unanticipated large expenditure. The current 1960-61 budget was established so as to bring expenditures within estimated receipts and provide an estimated operating reserve balance on July 1, 1961, of about $50,000.

Future Outlook

Although license sales have continued to in-

Financing Wildlife Conservation

by J. Thomas Williams
Chief, Finance and Personnel Division

crease in the past few years, the increase has not offset the more rapidly rising costs of operation. At present the gap between receipts and expenditures has been closed, making operational retrenchments necessary. Unless additional revenue is obtained it will be necessary to make further cutbacks in operations and services.

Our records show that from 1955 to 1959 our revenue increased about 23 percent. During the same period, however, the unit costs of labor, cars, communications, materials and supplies increased about 30 percent. The present trend shows that costs of wildlife operation are increasing 7 percent faster than wildlife income. This has brought us to the point where this year and next year we expect that total expenses will exceed total revenue even though there has been a calculated retrenchment in operations. A continuation of this trend without additional revenue through a license increase will force us to make further operational cutbacks.

Four Reasons for More Revenue

1. More revenue is needed to resume operations at pre-retrenchment levels. The inflationary spiral has caused some salaried positions to go vacant and has made it increasingly difficult to retain key personnel even though salary increases have been granted. Increased labor costs have forced cutbacks and slowdowns in construction work. Increased cost of materials and supplies has forced cutbacks in small game and big game management. Increased cost of transportation has forced a cutback in game protectors' activities. Lack of adequate vehicle replacement funds has forced a three-year rotation which has further added to unit cost of operations.

2. More revenue is needed to overcome pre-retrenchment program limitations. Even before cutback in operations was forced upon us, there were several well-recognized areas of inadequate operations caused by insufficient financing. Among these may be listed: lack of adequate transportation and communication equipment for refuge and engineering personnel; lack of adequate labor and operational funds to keep heavy equipment construction projects going; inadequate supplies of conservation education literature, TV programing and motion picture production; and dragged-out fishery surveys which could have been completed in a much shorter time if adequate funds had been available.

3. Providing adequate finances to overcome past deficiencies and recent retrenchment is not enough. We must also provide sufficiently to meet the accelerated demand for use of wildlife resources occasioned by the population explosion and leisure time expansion: more people with more time on their hands, and a greater and greater portion of them wanting to spend it in the out-of-doors. This mushrooming demand will require more places to hunt for waterfowl, small game and big game; more places to go fishing, and more access to existing public waters.

4. Additional funds are needed to change the present system of distributing and accounting for hunting and fishing licenses. The Commission proposes to relieve county wildlife protectors from the responsibility of selecting local license dealers, supplying them with licenses and accounting for license sales, so that this operation may be handled directly from the Raleigh office. This would enable the protectors to have more time to perform law enforcement duties more efficiently, and provide us with a more efficient system of accounting.

To do this would require a $24,000 increase in the 1961-62 budget to provide for additional accounting personnel and equipment, printing and postage. Continued operations (salaries, supplies and postage) would cost about $14,000 annually thereafter.

Summary

No one will deny that supplying these demands is in the best interest of all of the people of the State of North Carolina, but supplying these demands will require substantial program expansion. Some of the specific items which will require more money are: land purchase; equipment purchase, especially for communications; personnel and supplies for operation of heavy equipment and for maintenance of installations; personnel for surveying and cartographic work and to complete basic surveys and to conduct periodic checks on the status of wildlife resources; personnel and equipment for accelerating land management work, especially in forestry and timber sales; and personnel and materials for conservation education work.

The amount of money needed to meet these demands is, of course, difficult to ascertain and it is likely that regardless of however much the increase may be, there will still remain some unfulfilled demands. The Wildlife Resources Commission has always operated on a self-supporting basis and it wishes to continue to do so. We feel confident that those who enjoy the benefits of our wildlife resources are willing to pay the bill.

Principal Sources of Wildlife Income

Hunting and fishing licenses	70.0%
Federal Aid funds	20.4%
Miscellaneous receipts (surplus property, rents, magazine subscriptions, motorboat funds)	3.2%
Management Area permits (Forest Service land)	2.7%
Timber sales	2.1%
Trout licenses	1.6%
Total	**100.0%**

Satterwhite Point attracts many of the visitors to Kerr Reservoir, with picnic tables and shelters, supervised swimming and a marina that offers many boating services and supplies.

Family Fun at Kerr Reservoir

by Paul Anderson
Park Superintendent
Kerr Reservoir Development Commission
Illustrations by Jim Lee

KERR Reservoir, a mammoth impoundment that straddles the North Carolina - Virginia line, offers the inland sportsman an opportunity for boating and fishing which last year lured nearly a million visitors on the North Carolina side alone. This year, with improved facilities, the traffic counters will be even busier.

The trailer boater going to Kerr Reservoir will find that he has been given considerable attention by the U. S. Army Corps of Engineers and the Kerr Reservoir Development Commission. Five new concrete launching ramps have been constructed along Nutbush Creek, relieving a traffic jam that has bothered boaters for years.

The two agencies have built the launching ramps on a cooperative basis, providing wide ramps and ample parking. Each ramp has parking for from thirty to fifty cars with trailers, thus eliminating some of the bottlenecks previously caused by side-of-the-road parking.

Developments at Nutbush Creek

Although the lake has many access points, most were created when existing roads were covered by the rising water of the impoundment. These roads have a gradual slope, necessitating a long slow backup by the driver. The five new ramps have been placed on a 12 percent slope and are 24 feet wide except at Satterwhite Point. There a 30-foot ramp was installed. The water drawdown this year made it possible for ramps to run from Elevation 306.0 above mean sea level to Elevation 290. This will permit their use throughout the spring, summer and fall.

The new ramps were placed at Kimball Point in Warren County, Bullocksville Park, Flemingtown Road Marina, Satterwhite Point, and Townsville Landing. The Wildlife Resources Commission built an area at the Nutbush Bridge Recreation Area several years ago, and this will remain available.

Administering 8,000 Acres of Land

The Kerr Reservoir Development Commission is a State agency of ten members, appointed by the Governor to administer 8,000 acres of land adjoining Kerr Reservoir in North Carolina. The commission was created by the 1951 General Assembly and members serve without salary.

The area was first zoned into three classifications: public recreation, group camps, and wildlife management. Commercial development was to be accomplished by private enterprise under appropriate lease. As a result of this planning the commission now operates and maintains four recreational areas, has two marina leases and two other concession leases, and four group camps. The commission has recently leased an area to the Vance County Rescue Squad to facilitate their services on the lake.

Facilities for Family Fun

The recreation areas provide picnicking, swimming, and boating facilities. Tent camping is available at Kimball Point and Nutbush Bridge. The camping facilities are the only services furnished by the commission for which a charge is made. The fee is one dollar per day per tent and each site is equipped with a table, grill and trash can.

Satterwhite Point has five picnic shelters available for use by large groups, plus a number of other picnic tables scattered through the area for family groups. The commission headquarters and the Tarheel Marina are located here also. The marina has four vacation cottages, boats and motors for rent,

mooring, gasoline, fishing supplies, and other goods and services.

The Flemingtown Road Marina offers trailer parking, a snackbar, tent camping, mooring, boats, motors, and fishing equipment.

Bullocksville Park has three picnic shelters, a pavilion snackbar, swimming area, ball diamond, and the concessionaire is planning to build vacation cottages.

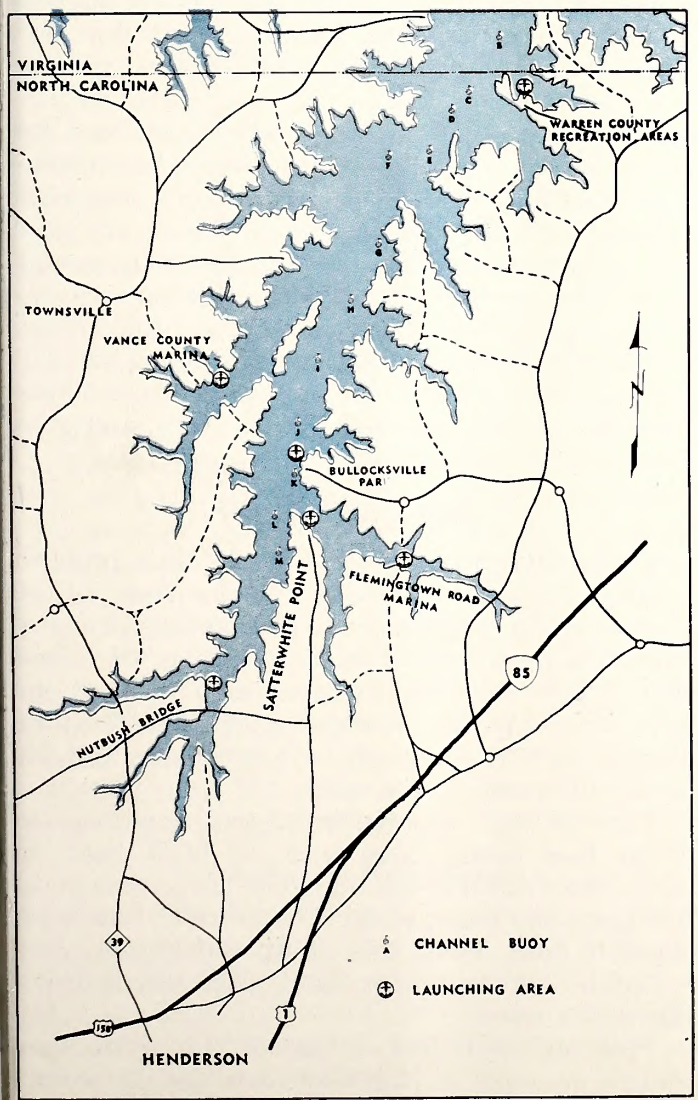
Over 450,000 People Last Year

These recreation areas have been carefully planned for use and development, with each building placed to take advantage of the view of lake and woods. The intensive use that is made of them proves that the Tarheel family likes to get close to the outdoors, whether for fishing, picnicking, boating, or just loafing.

Traffic counters at six points show that over 450,000 people visited the areas last year. This is believed to be about two-thirds of the total number using the 8,000 acres, since there are 15 access points where no count was kept.

Hunting is permitted over the entire lake except in the recreational areas, and the Wildlife Commission has made numerous plantings for upland game. The Wildlife Commission also planted striped bass fingerlings in the reservoir several years ago. Fish biologists have found that they spawned successfully, and striped bass are now landlocked in the lake.

Ardent fishermen have caught striped bass in the spring, fall, and early winter, and catches indicate rapid growth. The largest fish reported so far has been nearly twenty pounds.



Room for Exploring

A boater can travel from Nutbush Bridge to Clarksville, Virginia, following marker buoys for a distance of some 65 miles. He can stop to rest, eat or refuel at marinas located at Palmer Point, Townsville Landing, North Bend Park and Occoneechee Park. Such a trip would not include exploring the various creeks that lead off the main channel. To do that would require probably two weeks—still without covering the entire lake.

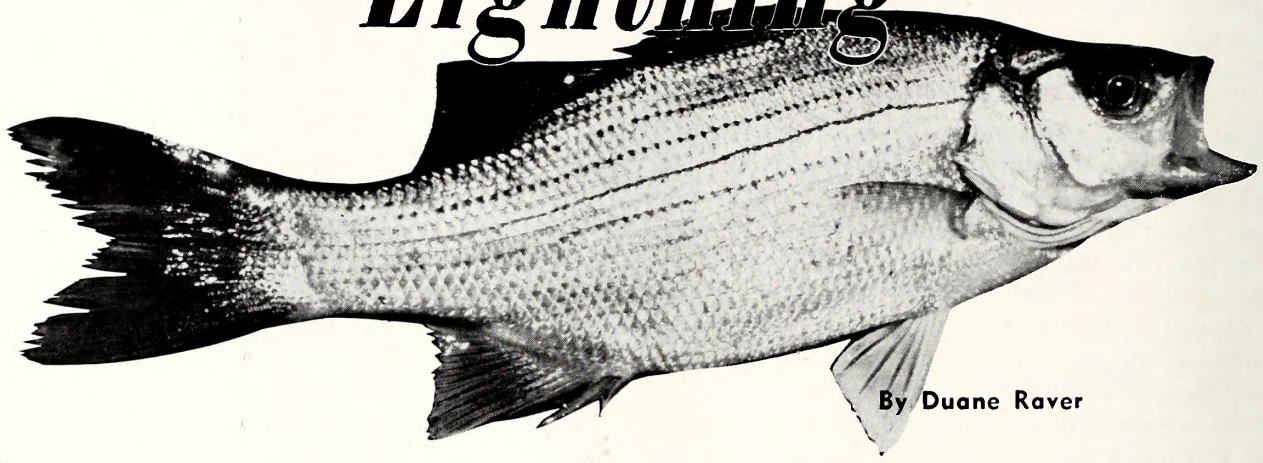
The numerous creeks feeding into the main channel are frequently quite wide, and can be confused with the main channel. That's why the channel has been marked with buoys—otherwise the boater unfamiliar with the lake could wind up lost at the head of a small tributary.

Private cottages have blossomed out round the reservoir during the last six years. Tent campers in increasing numbers have come from as far away as Canada, Michigan, New Hampshire and Florida. Weekend campers come from such nearer communities as Richmond, Washington, Raleigh, Durham, Greensboro and Chapel Hill. The crowning credit to Kerr Reservoir, however, is in the realm of boating. For the past two years the Norfolk and Newport News boat clubs have forsaken their own coastal waters and have come to Kerr Reservoir for their vacations.

New boat ramp at Satterwhite Point.

Picnic shelters overlook lake.

WHITE *Lightning*



By Duane Raver

With the successful introduction of white bass in piedmont reservoirs several years ago, Tarheel anglers have a new species to challenge their fishing talents. And the white bass can do just that — until you learn to catch him. This article tells how!

AFTER your first white bass is flopping in the boat, one thing will undoubtedly strike you: How can so much scrap be packed into such a little fish? There is no jumping, no tail-walking, just a pulverizing strike and smoking runs with speed to burn—truly white lightning.

The white bass is a paradox among fishes. At times, they will hit furiously and take almost anything the angler tosses their way. The next minute the swirling waters have swallowed them up and they seem to be gone. In some years, populations are bursting at the seams while in other years apparently few fish are produced.

The white bass grows fast, but doesn't live long, a ripe old age being four years. Feeding depths vary from right on the surface to 30 or 40 feet deep. Some of these idiosyncrasies add up to a pretty tough fish to catch consistently.

Challenge to the Angler

Held in high esteem by some, cussed unmercifully by others, the white bass does present a problem to the average fisherman. This dilemma isn't helped much by the number of different ways the white bass can and is caught. Almost every expert has his own method for outwitting this silver streak. One obvious secret these experts share is to fish where the white bass are. Even this isn't fool-proof insurance that good catches will be made.

One sure way to find out where the bass are concentrated is to follow another white bass fisherman. One thing you're sure to have on a successful trip is plenty of company. Usually the crowds head for known spawning grounds in the early spring. These are typically fairly fast-flowing streams emptying into the upper parts of low altitude reservoirs. The Uwharrie River spilling into Lake Tillery is a good example of the egg-laying grounds. The best fishing is in late March, April, and even early May in some years.

Persistence Pays Off

So the "when and where" of our little problem more or less solve themselves. Next is "how." Here your greatest single asset is persistence, an ingredient frequently found in most fishing. Of course this is true primarily because being there at the right time can make or break a trip. And this time element is critical enough for a few hours to make a big difference in the catch.

Time of day apparently is less important in white bass fishing than with the black bass. In some cases dawn is *the* time; but late afternoon of the same day may pay off. The answer: Fish from dawn to dusk. When this isn't practical from your schedule, hit the mid or later afternoon hours if the day is warm.

Probably well over a half of the white bass caught annually in North Carolina are taken dur-

ing the few short weeks of their spawning run. Even at that, it's a big help to pin down the traveling and feeding habits of the white bass you're after. Actually this generally boils down to a couple of hit-or-miss trips to work out the pattern that the migrating fish follow. If no pattern emerges, you're right back to fishing as often as your conscience will allow.

Shown above is an assortment of lures that will catch white bass. Size of lures is important. For success, they should equal the bite-size gizzard shad that the species feeds upon.

Feeding Habits Dictate Lures

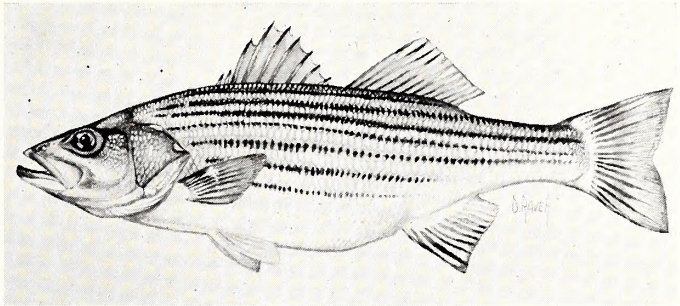
The extent to which these spawning-run fish feed is still a rather undecided matter. Actually, whether they feed heavily (or not at all) apparently does not really matter, since white bass strike furiously much of the time during their runs. The question arises then: If the bass aren't hungry, why do they hit very specific lures? It might seem that if the fish are not feeding, then they might hit most anything simply from plain orneriness. Not so.

Size of the lure is important, and it's very easy to use one that is too large. The white bass' number one food item during much of the year is small gizzard shad. These bite-size forage fish are most readily eaten while they are 2 to 3 inches long, hence the need for small baits.

Although white bass fishing is often done in clear water, a flashy, easily seen lure is by far the best. This means a spinner, small spoon, or bright plug. Check locally for the best lure at any particular time. If you're in doubt, start with a small, reflex spinner with yellow feathers on its treble hook. Use one that spins even at slow speeds.

Trolling to Find Schools

Many fishermen object to trolling as a means of catching fish. If you are after white bass, the chances are that sooner or later you will have to troll—at least to find the fish. If they are really concentrated, casting will do the trick as well as, if not better than, trolling.



Although similar in appearance, the white bass should not be confused with the striped bass (above), a fish that migrates up coastal rivers from the sea each spring to lay its eggs.

If you can pin down any rules for catching white bass, one would be to fish deep and in the main channel of the spawning stream. How far up the stream you will locate fish is anyone's guess. In some cases, shallow bars and rock riffles may stop your boat. It's a good bet that they haven't stopped the bass.

Just below these shallow-water barriers is an excellent spot to try casting for the spring white bass. Hard fishing for thirty minutes should tell the story. If no strikes, head for another location.

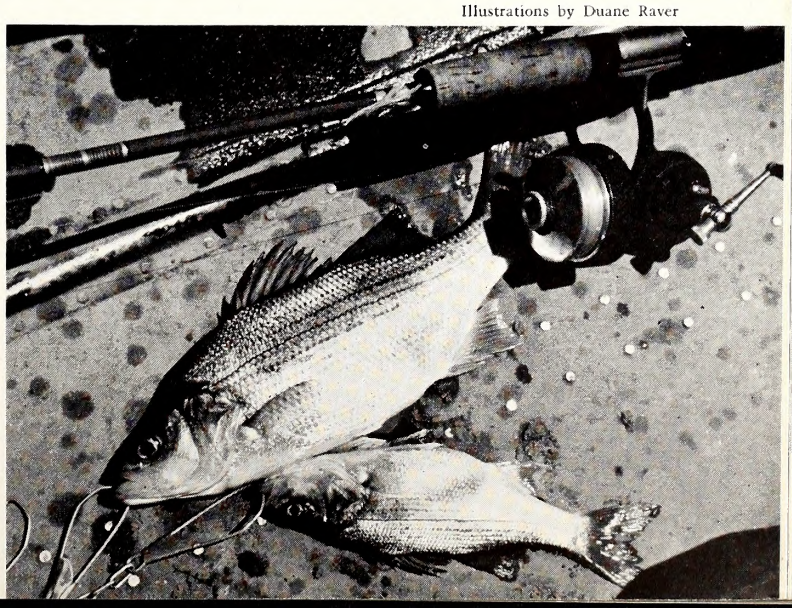
Most white bass caught on the spawning runs are taken within a foot or two of the bottom. Even in channels 10 or 12 feet deep, it generally pays to fish deep and rather slowly. Although these silver streaks really nail a lure hard, they apparently aren't willing to travel very far to catch it.

There will be times when early spring showers make the water muddy to the extent that artificial lures are unproductive. At these times, minnows hooked on a spinner arrangement, weighted to ride the bottom, pay off. But about here, as far as early spring fishing is concerned, the list of baits and lures ends.

If the slamming strike and jarring runs of a white bass don't bring you back for more, we'll be mighty surprised. And right now is the time to give them a try.

Once a school of white bass is located, fishing is fast and furious. There is no jumping or tail-walking, just a pulverizing strike and hot runs. The fish is truly white lightning.

Illustrations by Duane Raver



NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Trout Season Opens April 1

Tarheel mountain trout fishing will get under way in nearly 2,000 miles of stocked trout waters on April 1 - - - barring heavy snows and impassable roads. Last year's opening day was postponed due to heavy ice and snow storms that delayed pre-season stocking. Creel limit for trout is ten per day this year, and a special trout fishing license is required for fishing in designated mountain trout waters.

Farm Game Habitat Materials "Gone"

North Carolina farmers and sportsmen interested in providing habitat for rabbits and quail have completely used up the Wildlife Resources Commission's supply of free seeds and seedlings. Distributed were: 1,195,000 multiflora rose seedlings; 9,000,000 shrub lespedeza seedlings; 18,600 pounds shrub lespedeza seed, 22,400 pounds sericea seed, and 97,500 pounds of annual seed mixture. It is expected that all of the materials will have been planted by April 1.

Lake James Fishing Access Area Completed

North Carolina added another fishing access area to its list with the completion of a new one on the Catawba River near Marion, at the head of Lake James. This makes a total of 54 areas in operation throughout the state. Other areas are listed in the 1961 fishing regulations. The access area program has been extremely popular with Tarheel fishermen and boaters. Under present law no boating registration revenue may be used to purchase, construct and maintain the areas.

Mountain Trout Supply Good

During the 1961 fishing season about 610,000 mountain trout will be stocked in western N. C. trout waters, about one-third of the fish to be stocked prior to the April 1 opening date. The remainder will be stocked during the season. 330,000 of the fish were reared in State hatcheries, and 280,000 in U. S. Fish and Wildlife Service hatcheries. These are all adult "catching size" fish ranging from seven to twelve inches long.

TROUT FISHING CARNIVAL

Photo Feature by Jack Dermid

Fish and fun share the limelight on opening day at Sparta Millpond. April 1 is the big day this year.

SPARTA Millpond is always a popular place on the opening day of trout season, and opening day 1960 was no exception despite cold winds and occasional rain. The 7 a.m. starting hour found the steep banks fringed with anglers, in places standing elbow to elbow with scarcely enough room to cast. The water was dotted with boats.

The anglers came by the hundreds, from piedmont and mountain counties and from neighboring states. They were young, old, or in-between; experienced fishermen and greenhorns; doctors, lawyers, grandmothers, mechanics, housewives, and bright-eyed youngsters — they were all there and more. In fact, Dewey Ellis, Alleghany County wildlife protector, estimated that 2,000 fisherman tried their luck in Sparta Millpond during the day.

Parking space was at a premium on opening day, but there was always room for newcomers as anglers left with their limits.

The anglers came in raincoats, parkas, hip boots, and coveralls. They carried umbrellas, tarpaulins, sofa cushions, Thermos bottles, folding chairs, portable stoves, and sandwiches. Their fishing tackle was just as varied. There was every conceivable type of fly, spinning, and casting equipment as well as deep sea tackle and alder saplings. Baits were varied, too, but the earthworm reigned king.

The fishermen came with great expectations, for word had gotten around that the pond had been amply stocked by the Wildlife Resources Commission with choice rainbow and brook trout. And they were not disappointed. The fish were there and they were hungry. Most anglers caught fish, and many of them packed home limit strings of 10 to 12 inchers.

The total catch, numbering thousands of trout, rated second to the unlimited fun enjoyed by all. Opening day was, indeed, a trout fishing carnival.

The fishing was made possible through the generosity of the Dr. Grabow Pipe Company, owner of 25-acre Sparta Millpond, in permitting free public fishing.

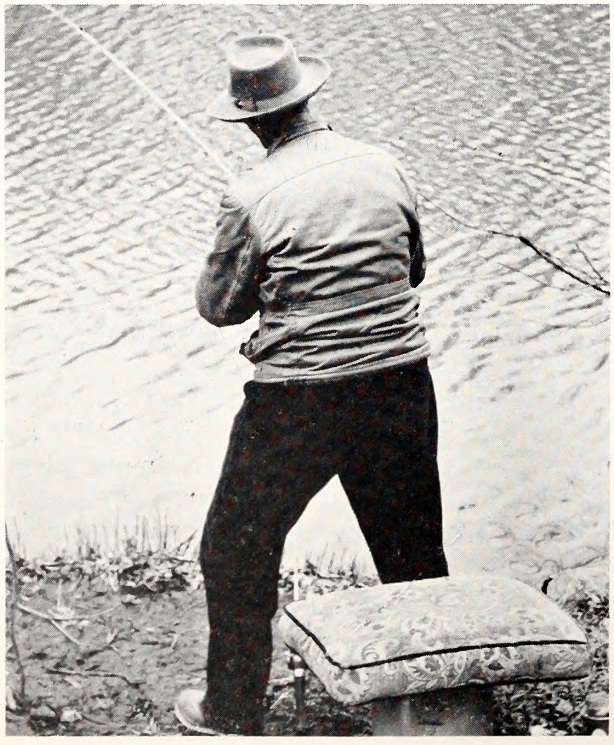
Sparta Millpond is located just south of Sparta on Highway 21, and the scenes shown on these pages will be repeated again this year. Why don't you join in the fun!

When fishing was fast, Mrs. Jack Hester of Elkin and the other ladies had to wrestle with their own worms. Right: The dam was a popular fishing place throughout the day.

Fred Gant of Jonesville selects one of his pet lures. Bait of all sort was used, but worms were the most popular choice.

TROUT FIS

Some anglers had the foresight to bring chairs and cushions for deluxe comfort during the lulls between bites.

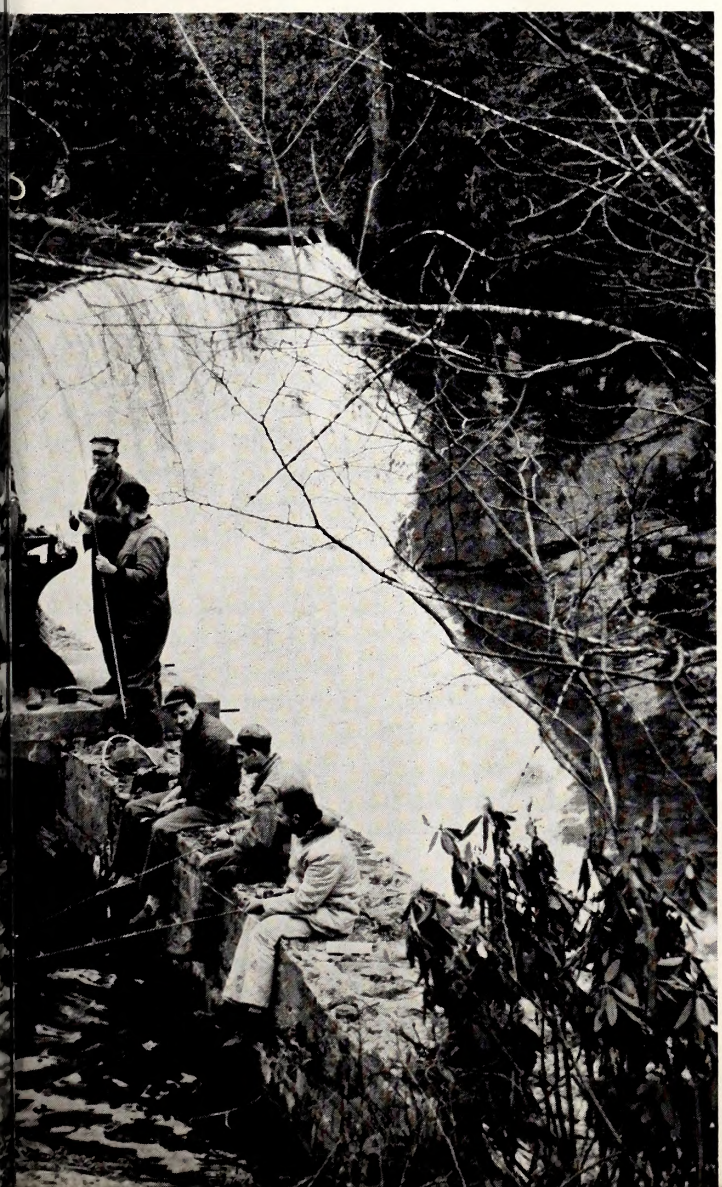


Opening day attracted anglers of all ages. Here, Mrs. H. R. Freedle of Sparta and her grandson, Cris Jones, share the fun.

A portable stove kept hot coffee handy for S. V. Smith of Winston-Salem. Others used Thermos bottles or made trips to town.

CARNIVAL

Of the craft on the millpond, none attracted more attention than the innertube raft used by Howard Sexton of Grassy Creek.



Curt Butner of Winston-Salem caught his share of fish as did many anglers. Average trout caught were 8 to 12 inches long.

You Can Tell a Tenderfoot

But You Can't Tell Him Much

by Jim Lee

Illustrations by Bill Ballard

BACK in the days when the West was young, a term was coined to describe the newcomer from the East. Blistered heels and aching arches were usually the first difficulties met by new arrivals in the Gold Rush days. Many fortune hunters took the longer route by water, and every clipper arriving at San Francisco carried its quota of soft-footed dandies from the Eastern cities.

The typical adventurer equipped himself with new boots and loaded himself like a pack mule before heading for the hills. When he finally unshouldered his pack at the diggings, he was given—and he deserved—his title. He was the Tenderfoot.

You'll still meet the Tenderfoot, almost any weekend in almost any part of North Carolina. His boots and his equipment may be a little more modern, but his blistered heels and aching arches are just as painful as his great-grandpappy's a hundred years ago.

The Tenderfoot also acquires a lot of other aches and pains, bruises, abrasions and rashes during his first few days of communion with Nature. Sometimes the Tenderfoot has the stamina to overcome Nature's threats to his weary carcass; sometimes he surrenders and retreats to the safety of his own cheerful hearth.

The crisis may come as abruptly as a broken starter cord on an outboard—or the crisis may build up gradually, as with the slow swelling of poison ivy-covered cheeks that finally close the Tenderfoot's eyes.

Either way, a circle of friends and family watches with concern as the crisis develops. Will the Tenderfoot flee back to civilization, or will he conquer the challenge and become an Outdoorsman?

Charlie Let It Get the Best of Him

Charlie gave up. One brush with Nature, and he retired to the pool room. And it was a toothpick that did it. Inspired by the tales of Ernest Thompson Seton, Charlie set out on a career as a reflective naturalist. This meant spending every Sunday afternoon dozing in the sunshine with his back to some tall forest tree. Thinking.

One afternoon Charlie was especially deep in thought, and reached up and nipped a twig from the vine-covered tree that was his shelter for the day. Carefully trimming the twig to a fine point with his pen-knife, the lad made himself a toothpick. Did a good job, too. After picking the remains of his lunch from between his teeth, Charlie chewed the twig to tatters.

You guessed it. Charlie had his first brush with poison ivy. He spent the following week sipping soup through a straw, with the inside of his mouth

so swollen that he could hardly croak. Subsequently he dropped the career of naturalist, took up pool, and at last report has become quite a shark. But his eyes roll with terror at the mere suggestion of stepping off the sidewalk.

Huga Liked a Merry Campfire

Hugo meant well, but his mother had never let him play with matches. When the local church asked him to take over their Boy Scout troop, he immediately set out to become an Outdoorsman. He practically bought out the sporting goods store, and took the boys camping the first warm weekend.

Hugo's tent looked like a manufacturer's display. Comfort was the word, and Hugo piled a foot of pine straw in his tent to provide a soft bed. Close to the door, where its warmth would reflect into the tent, Hugo built a magnificent fireplace. He spent the afternoon chopping trees, and by supper there was enough firewood to last a month. "A merry blaze," Hugo said, "will keep the bears and snakes away."

All was quiet when Hugo made the rounds of the tents, and he saw that each youngster was safely tucked in his blankets. Piling another arm-load of wood on his fire, Hugo retired for the night. Hugo's wife always complained of his cold feet; tonight his

feet were warm as toast. He sighed, "This is really living," and fell asleep.

Hugo's slumber was disturbed a bit later, as he began coughing and choking. "The wind's shifted," he thought, "and the smoke's blowing into the tent. Well, anyhow, my feet are nice and warm." Too warm, in fact. Hugo sat up, and saw that his bed of pine needles and his twenty-dollar sleeping bag were just beginning to blaze merrily.

Hugo didn't even salvage his dignity. He spent the rest of the night shivering in his pajamas beside the smouldering remains of the tent, while one of the patrol leaders earned credit toward his First Aid Merit Badge by treating Hugo's burns.

Sometimes a close call is all that's needed. Hugo now keeps his campfires small, away from tents, and never out of sight of someone. He tells the boys who join his troop, "Let's be Outdoorsmen. Outdoorsmen build small fires, get up close and keep warm. Tenderfeet build big fires, keep warm chopping wood."

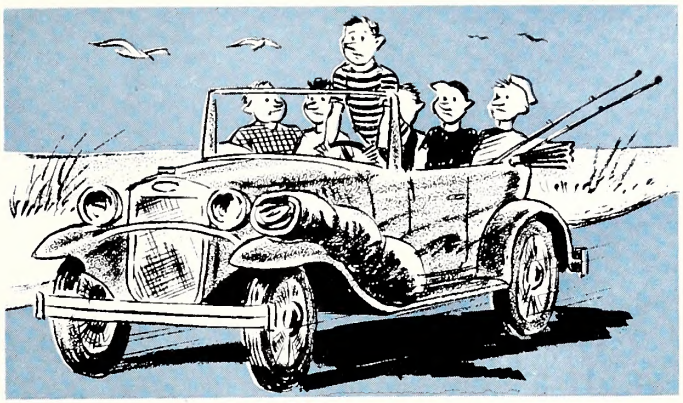
Did You Ever Drive a Car Standing Up?

Back in the days when there were only a few developed beaches along North Carolina's Coast, a group of high school students from an up-state city yearned for an Easter vacation that would be different. They piled camping and fishing gear into an old Model A and drove to a tiny fishing village on the Inland Waterway. Borrowing a skiff, they rowed to an island forming one of the barrier beaches along the southeastern coast.

Now there are dozens of vacation cottages along this beach, but in the mid-Forties there wasn't a soul on the island except our heroes. The first two days of their vacation saw overcast skies, but on the third day the sun came out, and springtime filled the air. It was April.

One of the crew, whom we'll call Don, did a dance in the sunshine, threw off his clothes and plunged into the chilly surf. The warm sun helped him recover, and he spent the rest of the day basking and fishing in the surf. His trousers lay on the beach.

When the evening glow of the setting sun cast its pink rays on the landscape, Don's landscape



was a bright red. Next morning, when the group rowed back across the marshes to the fishing village, Don stood in the boat instead of sitting.

The trip home, some two hundred miles, was a forlorn affair. Friend Donald was the only one in the crowd old enough to possess a driver's license, and poor Don couldn't sit down for the blisters. Have you ever tried driving while standing up?

The Lessons We Learn

These tales aren't related simply to poke fun at someone's misfortune. In each instance, the victim brought his troubles on himself. Outdoor life can be fun, but the Tenderfoot who overlooks the potential dangers can soon find himself in trouble. Sometimes this trouble is tragic.

Charlie forgot that there are plants to be wary of—poison ivy, poison sumac. Some of those cute little snakes aren't too friendly, either. If you've been in contact with poisonous plants, wash the exposed areas with strong laundry soap. Better yet, know your plants and avoid the troublesome ones. If you've been bitten by a snake, use an ice pack while you hasten to the nearest doctor. Know your snakes, so you'll know how fast to hasten, too. Most snakes aren't poisonous, but a tetanus shot is still in order.

Hugo was careless with fire. He was lucky to escape with minor burns and the loss of his equipment; he could have lost his life. Campfires belong on the picnic and camping scene, but require a watchful eye. When you leave, make sure the fire is out. That pretty forest glade might be charred and blackened stumps when you return.

Don was a victim of sunburn—seldom serious, but a threat to your enjoyment of a vacation. Sunburn is fine in small doses, and suntan lotion can help you tolerate slightly heavier doses. Those first fine fishing days in spring bring a temptation that's hard to resist, but you can compromise. Long sleeves and a wide-brimmed hat can save the day.

Mother Nature can be a harsh teacher, dealing severe punishment for small mistakes. It's the lessons we learn from these mistakes that separate the Outdoorsman from the Tenderfoot.

a lot to do about COON HOUNDS

LAST January 19 and 20 were busy days at the Sandhills Wildlife Management Area near Hoffman. The Cabin Creek Cooner's Club of Candor staged a highly successful wild coon hunt and bench show.

The two-day event was licensed by the United Kennel Club, and attracted more than 200 sportsmen from six states. Over 70 hounds were entered in competition, representing all six breeds of dogs recognized as coon hounds.

Activity during the first afternoon centered around the club fireplace, but a heavy downpour slackened in time for the night hunts. The wet woods made tracking conditions ideal, and the bountiful raccoon population of the Sandhills refuge provided top sport. More than 12 coons were "seen" in the 3-hour competition. A bench show highlighted the second afternoon, followed by another hunt at night.

Top dogs of the bench show were: "Barnhills Rawhide," Best Male of Show, a black and tan owned by Hoyt Barnhill of Mullins, S. C., and "Flying Red Peggy," dog, an English coon hound, owned by George Metzger of Williamsport, Pa. Coon hunt trophy winners were: "Blakes Dan River Spot," highest scoring registered dog, an English coon hound, owned by George Blake of Madison, and "Eagle," highest scoring grade dog, owned by Donald Warfield of Mt. Airy, Md.

Officers of the Cabin Creek Cooner's Club are: M. J. Allen, president; A. J. Harley, vice-president; and Millard Rich, secretary-treasurer. The club plans to hold a water race at Candor on July 4.

Left: A bench show judge scrutinizes a blue tick hound. Below: During competition hunts, dog handlers interpret the . . .

. . . barks of their dogs for the judge who tallies points won on score sheet. This coon hound knows a coon is hiding above.

Photo Shorts by Jack Dermid

a lot to do about BEAGLES

DESPITE frozen ground and sleet followed by rain, the music of trailing beagles echoed over the wilds of Nash County last February 4-7.

The West Ridge Beagle Club of Rocky Mount held their first annual field trial, an American Kennel Club licensed event with more than 200 registered beagles entered in competition. The dogs represented owners from 11 states and attracted scores of sportsmen to the field trial course located near Nashville.

The beagles were run in pairs, with two judges following close behind the chase to determine which dog did the best job of following the cottontail's trail. The contest was a real workout for the judges who stayed with the beagles through both thickets and swamps.

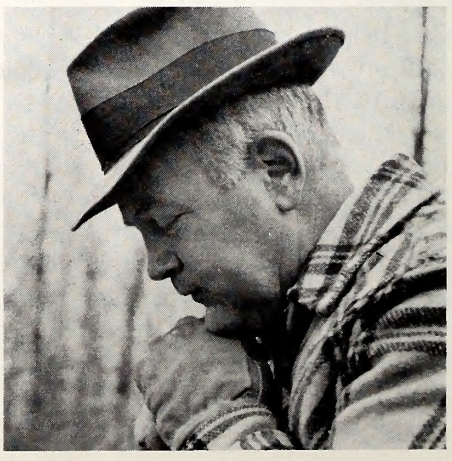
First-place beagles in the field trials were: "Cherry Road Connie," 13-inch female owned by H. R. Bridges, Rock Hill, S. C.; "Lake Side Bugler," 13-inch male, owned by R. G. Casey and Seth Hastings, Laurel, Delaware; Hanf's Flea Bitten Susie," 15-inch female owned by Werner Hanf, Charleston, S. C.; and Rogers' Rebel Stow," 15-inch male owned by James Rogers.

The West Ridge Beagle Club has a membership of 94 and leases a 650-acre tract for running dogs. The club plans to construct a 75-acre enclosure for use during future field trials.

Officers of the West Ridge Beagle Club are: R. C. Branch, Jr., president; S. D. Barnes, vice-president; J. D. Huffman, secretary; and W. W. Wright, treasurer.

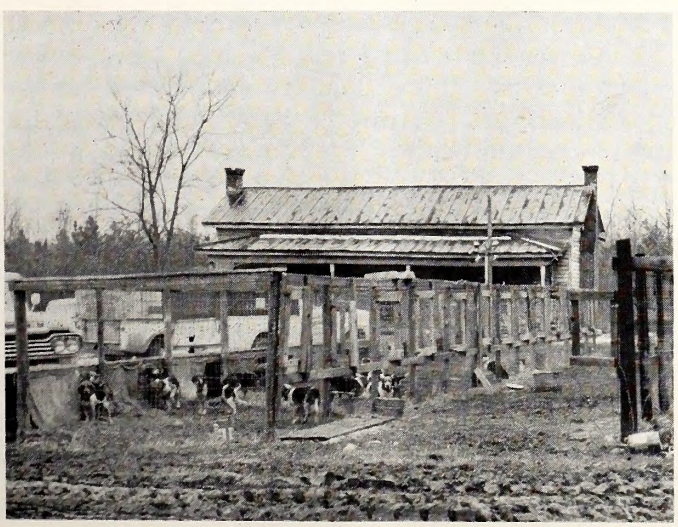
Beagles wait their turn to run in competition while beaters tramp out thickets to spook a rabit. When a rabbit is jumped . . .

. . . two beagles are put on trial. Judges follow to score dogs. Right: R. C. Branch, club president, listens to music of chase.



A large coon population at the Sandhills Wildlife Management Area provided many races. Below: The Commission maintains a spacious clubhouse (below), stables, and kennels for use during field trials of all kinds on the area.

There were plenty of rabbits. Prior to the trials, over 200 live-trapped cottontails were released on the course. Below: The West Ridge Beagle Club has roomy, clean pens for holding dogs. Farmstead behind pens serves as clubhouse.



BOOK REVIEW

Semipalmated plover—one of many pen and ink illustrations by John Henry Dick. The sketches are not designed for identification purposes, but delightfully interpret the habits and moods of shore birds.

A Gathering of Shore Birds

By Henry Marion Hall

Edited and with additions by Roland C. Clement. Illustrated by John Henry Dick. The Devin-Adair Company, 23 East 26th Street, New York 10, New York 1961. 242 pages $10.00

SHORE birds are as much a part of the North Carolina coast as sand and sea. Regardless of season (most abundant during spring and late summer migrations), tide or weather, they are the busy inhabitants of sandy beaches, mudflats, and marsh edges—forever flying with military precision, teetering on delicate legs, or dodging breakers while searching for food. They are friendly companions of the beachcomber and the surf fisherman.

But how many beachcombers or fishermen can call them by name or know about their fascinating lives? Until the publication of *A Gathering of Shore Birds,* they were a difficult group of birds for the casual observer to know. Field guides made identification possible, but a search of a scattered literature was required to learn of their natural history.

Now, *A Gathering of Shore Birds* brings together an account of all 57 species of shore birds known to breed in North America. Although scientifically accurate, the text is more than a presentation of facts. It is also an adventure in delightful outdoor reading. Descriptive passages describe the migration of golden plovers, the way oystercatchers feed on oysters, or the sheer beauty of lonely beaches. Each species is considered in a separate chapter, with summary notes on local names, field characters, and range.

Here, too, is a book for the hunter and the conservationist. Chapters are devoted to the woodcock and the Wilson's snipe, both popular game birds. Of historical interest are accounts of the "good old days" when all shore birds were legal targets for both market hunters and sportsmen and how overshooting decimated their numbers to dangerously low levels. Fortunately, through protection, the shore birds have now made a remarkable recovery.

A Gathering of Shore Birds is a worthy book for the sportsman's library, a book that will bring new meaning to every trip to the coast—*Jack Dermid.*

THE "Rules of the Road" of boating are old hat to many skippers and many boating newcomers have read and studied them. But how many skippers fail to practice these safe-boating regulations?

These "Rules of the Road" were designed for all boatmen to follow—just as traffic regulations are set up for highway travel. The Evinrude Boating Foundation reminds boatmen that they help make boating safe for you and your family.

"Rules of the Road"

Every good skipper should know these basic rules of boating:

To avoid collision when meeting another boat, always bear to the right. A boat should always give way to another in its "danger zone" by altering course. (The danger zone is that area from dead ahead to two points abaft the starboard beam—in other words, a boat approaching from the right.) By the same token if a boat approaches from your left—or port—side, you have the right of way. However, it is advised that you slow speed until you know what the other skipper is going to do.

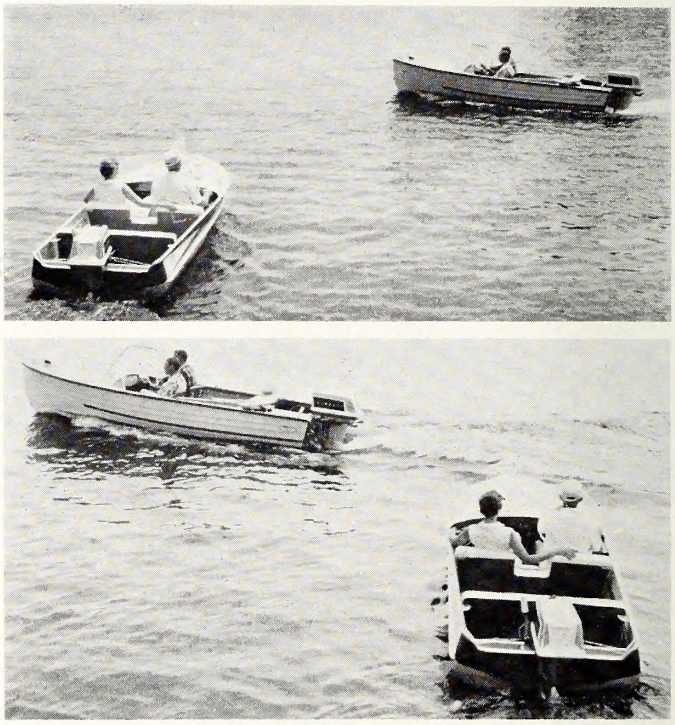
When overtaking and passing another boat, always stay clear of the boat being overtaken. If the boat doing the overtaking is a large vessel with a deep draft, it is good manners and sound seamanship for the skipper of the smaller boat to pull to the side of the waterway to let him pass. This is one situation in which it is not wise for the outboard skipper to insist on the right of way.

Sailboats always have the right of way over power boats except in the not very likely possibility of a boat under sail overtaking one under power. Courtesy also requires that sailboats while racing be given a wide berth. If you have to pass closely to a sailboat, do so slowly and on the leeward side (the side on which it is carrying its main boom) so as to cause the least possible disturbance from your wake.

Fishing boats with nets, lines or trawls out, whether anchored or underway, should be passed with caution. However, fishermen should never anchor in a channel or fairway. Nobody has rights in these areas unless they are "just passing through."

When leaving slips, wharves or piers proceed with caution. Boats have no rights until they are in open water—entirely clear. Boats going downstream or down-current in moving waters have the right of way over boats proceeding upstream.

Tugs and barges should be given the right of way. Literally, power boats have rights over these vessels, but because of their poor maneuverability, tugs and barges should be given authority.



Photos courtesy Evinrude Boating Foundation

These photos demonstrate one "Rule of the Road." The outboard on the right has the right of way; the other boat yields.

Should any mishap occur within the skipper's visibility it is always expected he will lend a hand wherever needed. Most of the time it is not serious—simply a boatman who has let his fuel tank run dry—but it is always a good idea to check even if it doesn't look serious.

Wherever and whenever possible, always use common sense. This is one regulation that cannot be outlined, yet it is the basis of every safety tip and feature that can be offered.

Rescue

Last fall, two duck hunters loaded their gear (including a big husky Laborador retriever) into two small boats and began their pre-dawn paddle up a 100-acre lake. Their goal: to bring down a mallard or two.

The boats were not ideally suited to duck shooting but neither were they unsafe. Each hunter sat quietly in his respective boat and the well-mannered Lab lay expectantly in the center portion of the

lead boat. For some reason or other, the hunter in the trailing craft decided to shift his position and in so doing lost his balance and tumbled into the chilly November water. The commotion and shouts of the struggling man aroused the retriever and as the lead boat swung back to help, the dog inched toward the side approaching the spouting hunter.

Thoroughly chilled and not a little frightened, the man overboard grabbed the gunnel of the rescue boat, the dog moved closer to see the operation, and over went the second craft.

This was a series of events that were totally unprepared for, each happening in an eye twinkling, and each adding up to ultimate trouble. This incident is described to single out one shortcoming of many boaters: a serious lack of know-how in water rescue work.

In the above case, the fact that perhaps the need for rescue could have been avoided is, at the moment, unimportant. Just how would you go about rescuing a swimmer or capsized boater in trouble?

In the excitement of the moment your inclination to dive into the water and save the struggling person may be strong. Unless you can not save the person in any other way (and only then if you are a good powerful swimmer) should you enter the water to make the rescue. Attempted rescues have so often resulted in the needless drowning of the would-be rescuer.

A life preserver is an important item aboard any boat. With it, you may be able to save a life without diving in and risking or losing your own.

Photo by Jim Lee

If you are in a boat and approaching a struggling person, swing the boat's stern toward the victim and come in against the wind. Be extra careful not to over-run the person in the water. If you're in an outboard, cut the power only when you are in a position to quickly reach the victim by a few quick paddle strokes. Always approach stern-first. If the person being rescued is conscious, he will grab for the first thing that comes into reach. Pull him over the stern, abdomen down, by grasping the arms just below the shoulders. Your main objective is to get him into the boat even at the expense of a scratch or two.

An unconscious victim may be floating on the surface. By leaning carefully over the stern, hoist him aboard in a manner similar to that described above.

Artificial respiration can be started at once if the victim is not breathing. Don't wait until you reach shore. A few minutes could be the difference between life and death.

If the person to be rescued has sunk beneath the surface but is still visible, quickly make every effort to bring him up with a paddle, boat hook, or any object at hand. Only as a last resort should you go into the water after the victim. It may seem odd, but even the simple matter of getting overboard is actually tricky. Safety to your own craft and speed are the important aspects here.

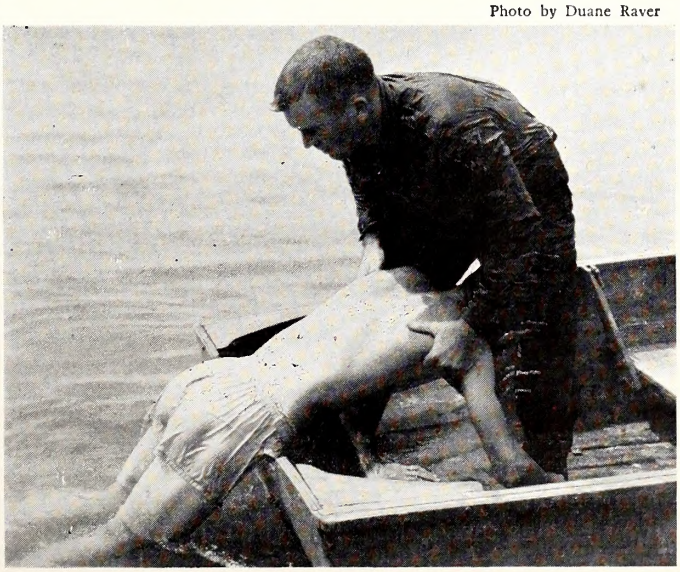
One of the easiest and safest exits from your boat is to vault over the side. Place your hands on the gunnel and spring over the side. It will help you and provide a certain measure of added safety if you first don a life vest or jacket before hitting the water. It will take extra seconds but it will pay off. Now that you're in the water, here's where expert techniques must be employed.

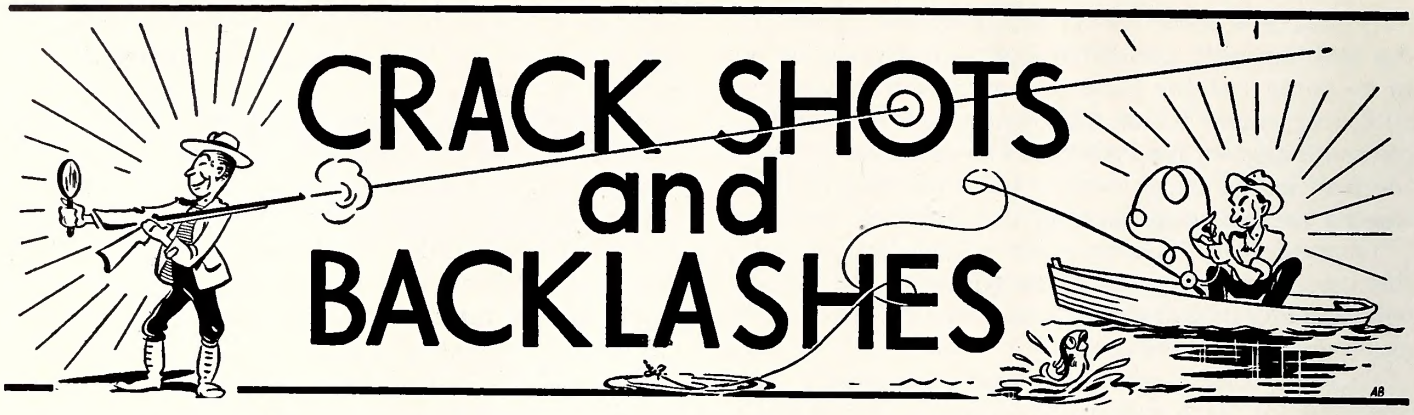
If the victim is unconscious, bring him to the boat as quickly as possible and hoist him part way over the stern. Make sure that he will not slide back into the water. Re-enter the boat by keeping low and scrambling over the stern. Lift the victim aboard and begin artificial respiration at once.

Obviously, you can not gain the fine points of water rescue by reading these pages. At least you may now realize just what a real problem can confront you in saving a life in a boating accident. Let's hope you never have to rescue anyone; but if you do, let's hope that you're ready.

Lifting an unconscious person into a boat requires know-how. Proper technique as outlined above makes job easier and safer.

Photo by Duane Raver





DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Seen an eyrie lately? The National Audubon Society is making a nationwide survey to locate nesting sites of our national emblem, the bald eagle. These majestic (?) birds are known to nest in North Carolina, and the Society has provided the Wildlife Resources Commission with forms for use by personnel who know the location of eagle nests and who won't confuse them with osprey nests.

Several years ago a pair of bald eagles were observed from the Commission's patrol plane. The birds were mating at an altitude of about 4,000 feet.

The following correspondence gives information on the project (the survey, that is).

Mr. William P. Saunders, Director
North Carolina Department of
Conservation and Development
Raleigh, North Carolina
Dear Mr. Saunders:

Considerable concern has been expressed during the past few years over the apparent downward trend in the population of the bald eagle, our national bird. Much has been written on the subject but actually little concrete information has been available. The National Audubon Society, through its research department, has recently launched a project which is designed to discover some of the facts.

The project is designed to run for a minimum of five years and will be carried out in two phases. The first of these will consist of an inventory based on the number of active nests located. The second phase, which will run somewhat concurrently with the first, will be concerned with detailed investigations of various aspects of eagle biology such as productivity, longevity, movements, etc.

The first part of this study will be undertaken through the medium of a mailed questionnaire, a copy of which is attached. It is hoped that the cooperation of a sufficient number of persons can be enlisted to insure an adequate coverage of North America. We very much hope that the personnel of your department will be willing to take part in this survey. The most pressing need, at present, is information on the location of active nests. We are also interested in locating wintering concentrations of bald eagles.

We earnestly solicit your cooperation, and upon hearing from you—favorably, we hope—we shall send enough copies of

Bill Ballard

the questionnaire for distribution to your men in the field. Let me know how many.

We know you agree with us that the bald eagle is deserving of our best efforts toward insuring its survival as a part of our national heritage. ALEXANDER SPRUNT IV, RESEARCH BIOLOGIST, NATIONAL AUDUBON SOCIETY, TAVERNIER, FLA.

DEAR MR. SPRUNT: Your letter of December 31, 1960 to Mr. William P. Saunders, regarding a survey of bald eagle nests has been referred to this office. If you will forward about 50 copies of the questionnaire, together with appropriate instructions, we shall be happy to forward them to appropriate employees of our agency.

It is suggested that sufficient information on the relative size and location of eagle nests can be prepared to preclude confusion with the nests of the osprey. T. STUART CRITCHER, FEDERAL AID COORDINATOR, GAME DIVISION.

Letter From a Convert

A number of years ago the public was thoroughly sold on the idea that the only way to have a deer herd is to harvest bucks only. Only when huge herds starved to death in several states was it determined that in some cases it is necessary to kill doe deer to keep the herd in balance. Here is a letter from a "convert."

DEAR SIRS: It has been three years, more or less, since my heated argument with the Wildlife Commission in regard to legal doe deer hunting. Since that time I have left North Carolina and now reside in Florida.

After being away two years, my interest in North Carolina's game, fish, and its Commission has increased and I am more interested than ever in its complete success, inasmuch as I intend to return to North Carolina for short periods in the years to come, and along with my son, enjoy the hunting and fishing that has always been so dear to me. My happiest memories are hunting and fishing in western North Carolina.

Feeling the way that I do about my native state, and its Wildlife Commission, I will never be satisfied until I let you know that the statements that I made three years ago in reference to legal doe deer hunting were very foolish. In the first place, I made no studies to back up those statements and I certainly was not qualified to make the statements even if I had studied.

However, since then I have studied and I have read every article in Field and Stream, Sports Afield and many others in reference to this very important matter. Now, I am just as sure that the Commission is right as I was sure it was wrong

COMMISSIONER CARR RE-ELECTED CHAIRMAN

District 2 Commissioner Robert M. Carr, Wallace, was appointed to the Wildlife Resources Commission for a second six-year term recently, and the following day was re-elected chairman of the nine-member commission. Shown in the above picture, taken during the January meeting, are Commissioners R. Floyd Crouse, Sparta; G. E. Beal, Red Oak; Thurman Briggs, Lexington; Executive Director Clyde P. Patton; Chairman Carr; Vice-chairman J. A. Bridger, Bladenboro; Secretary T. N. Massie, Sylva; S. I. Stewart, Greensboro; James A. Connelly, Morganton; and O. L. Woodhouse, Grandy. In the picture at right, State Supreme Court Justice Clifton L. Moore of Burgaw, left, administers the oath of office to Commissioner Carr, while Governor Terry Sanford watches. The ceremony was held in the Governor's office, with other members of the Commission and staff present.

three years ago. It is just a matter of simple arithmetic and common sense.

My belief is now that while training with the Commission, I pictured killing a doe deer almost as bad as killing a human being. Therefore, in writing this letter, I would like to assure you that I am ever mindful of the fact that the North Carolina Wildlife Resources Commission is doing everything within its power to insure more sport for more people, including me.

So help me, I will never be inappreciative of this fact! JACK B. AKIN, FORT MYERS, FLORIDA

Here We Go Again!

DEAR SIRS: When I studied Law at Wake Forest, we had a long argument about the meaning of the word "illegal." Does the word have more than one meaning? LUCRETIA PLYMPH, WAKE FOREST.

Yes. Sometimes the term is used in referring to a sick bird.—Ed. By the way, Lucretia, a sick eagle in flight is like a conspiracy; it is an illegal proceeding . . .

Sportsmen?

DEAR SIRS: I was out hunting approximately three or four weeks ago and there was another party of hunters on the same tract of land. They were a group of local fellows.

I came upon them at a particular spot; they were standing about 40-50 yards from some trees that had four or five squirrel nests in them. They were shooting into the nests with 22-caliber rifles. After expending 30 or 40 rifle cartridges a female squirrel finally came crawling out of the nests. She wasn't dead then so they kept shooting until she fell out of the tree. One of the guys went down and picked up the squirrel and she was full of bullet holes. The fellow that retrieved the squirrel ask the other guys which one of them wanted it, and they said "We don't want it, it's shot up too badly." I observed all of this with my own eyes and it burnt

NOTICE TO TAXIDERMISTS

The North Carolina State Museum and the North Carolina Wildlife Resources Commission receive frequent requests from sportsmen for the names of taxidermists. We have no list of individuals or concerns that mount deer heads, game birds, and fish or can handle the tanning of skins and pelts. Such a list would be useful to the sportsmen of the state, and taxidermists are requested to send their names and addresses to the Editor along with a list of the services they perform. This information will be tabulated into a list for distribution to sportsmen upon their request. In order for the list to be complete and useful, all taxidermists are urged to comply.

Peter J. Hanlon, lower right, new supervisor of the North Carolina National Forests, is shown during a recent visit to the Wildlife Commission's Raleigh office. Seated at left is Commission director Clyde P. Patton, and standing are (left) assistant director Eugene E. Schwall and Forest Service wildlife specialist Don Strode, who accompanied his new supervisor.

PROTECTOR OF THE MONTH

James Neill Beatty

James Neill Beatty was born in Gaston County on October 3, 1914. He graduated from Stanly High School and attended Louisburg and North Carolina State College. He also attended the 1950 session of the Wildlife Protectors' Pre-Service Training School at the Institute of Government in Chapel Hill, and has attended three In-Service Training Schools since that time.

Neill was appointed Wildlife Protector for McDowell County in January, 1952. Prior to his employment with the North Carolina Wildlife Resources Commission, he held a position with Eaker's Motor Lines. He is married to the former Hallie Sweatt, and they have one daughter, Renaldia. The Beattys are members of the First Methodist Church in Marion, where they reside.

ENFORCEMENT RECORD FOR JANUARY

HUNTING & FISHING:	
Persons checked	14,785
Total prosecutions	462
Total convictions	441
Total cases not guilty	11
Total cases nol prossed	10
Total fines collected	$5,269.75
Total costs collected	$3,225.30
BOATING:	
Boats checked	36
Total prosecutions	20
Total convictions	20
Total cases not guilty	0
Total cases nol prossed	0
Total fines collected	$ 75.00
Total costs collected	$ 120.00

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

me up. Could we call such people sportsmen or murderers? Most of them were from the Julian area. People like these should be prosecuted; but I don't even know who the Guilford County Game Protector is. JACK MURPHY, JULIAN, N. C.

Reports like this help with our law enforcement program—if reported directly to our wildlife protectors. The protector in Guilford County is Thomas M. Daniels, Box 279, Jamestown, phone High Point 7-7865. —Ed.

Floating Down the River

DEAR SIRS: A college buddy and I are planning a float trip down the Neuse River next summer. I have lived on the banks of the Neuse all of my twenty years and know it pretty well in my immediate area. (The "Neuse Islands" between Smithfield and Goldsboro).

We wonder if you could get us a map of the river from "stem to stern" in as much detail as possible.

For my own personal use I would also like to get hold of a map of Mill Creek. As you may know, Mill Creek flows pretty closely parallel with the Neuse River for a few miles before it goes into the Neuse near Goldsboro. This forms sort of a tip of land between the Neuse and Mill Creek. This land usually floods when the fresh water rises. This accounts for the reason why this area is called the "Islands." This place has a reputation in Johnston and Wayne counties for being a great hunting and fishing area, due to its wilderness-like qualities.

By the way, I really get a kick out of the Wildlife Magazine. BILL JINNETTE, JR., GOLDSBORO

Maps of navigable streams are available from the U. S. Coast and Geodetic Survey, and individual county maps are available from the State Highway Commission. The latter are detailed, but are not intended for navigation use.

Evil Practice

DEAR SIRS: Let me say that I am not a deer hunter, however, this manner of taking deer has come to my attention and I wondered if anything could be done to curb this evil practice.

A person in a motor boat will ride up and down Roanoke River until a deer (buck usually) is seen swimming across. He will then herd the deer to a location of his own choosing. He lets his partner out on land, the partner walks about 50 feet from the river bank and the deer exhausted from the swim is merely a "sitting buck." To me, I know of no lower manner to take any wild game.

Our game wardens are doing a good job but of course they cannot be everywhere.

If we could get some law passed or make the penalty so great that this practice would be stopped it would be a real help to all the hunters that enjoy the sport of deer hunting. (Name withheld by request).

It is now unlawful to take deer with the aid of any floating device on or within 100 yards of the Roanoke River between the bridge on U. S. Highway 17 and the one on U. S. 301, but this local law exempts Halifax County. It would appear that this type of law should be of statewide application and with the same penalty as for firelighting (fine of not less than $250.00 or imprisonment of not less than 90 days, plus confiscation of equipment used—including vehicles).

Picture from a Reader

Although we rarely use "dead game" pictures, this one is unusual enough to pass around. Friend Baldy Harris (who is *not* bald) sent this pic of a freak rack of antlers, taken near Como by "Black Cat" Mosley, Roanoke Rapids. Posed with the trophy is R. Jordan who will mount the head. Photo credit goes to The Roanoke Rapids Herald.

Hunting Rabbits in Snow

DEAR SIRS: I have a question that I would like you to answer. I know it is illegal to hunt in the State of North Carolina when the ground is covered with snow. Does this law apply to all states or just a part of them?

I am referring to the December issue of Field and Stream, this book carries a picture on the cover that is a violation in our state. Do you feel as I do that Field and Stream should check the laws of each state before running a picture of this kind?

I have been enjoying Wildlife Magazine for the past three years and hope to continue in the future. H. D. LANDRETH, WINSTON-SALEM.

North Carolina is one of a very few states having a regulation such as this one. In many northern states the ground is covered with snow during most of the hunting season, and prohibiting hunting while the ground is covered with snow would severely curtail hunting in those states. We believe that *Field and Stream's* cover would fit in most states.

A Fine Dish

DEAR SIRS: I read your article on eels and it is very good. I am from New York State and eels are sure something to eat; you can smoke them like ham or fry, first parboiling in milk to get all the oil out, and you sure have a fine dish. I sure like Wildlife Magazine. NORRIS H. FISKE, CHARLOTTE

Many people consider eels a delicacy. They are good jellied or pickled. Both jellied and pickled eels are available from delicatessen shops, catering to un-jellied, un-pickled gourmets.

Trapping Rabbits

DEAR SIRS: I would appreciate your settling an argument for me if you will.

Do you have to have a license to trap rabbits in North Carolina? This has been a big argument in my barber shop. I would like to know. Thanking you very much. CHAS. H. SHERRILL, MOORESVILLE.

No license is needed to trap or hunt rabbits on a person's own property. Under North Carolina law, box trapping of rabbits is considered a form of hunting, and a hunting license would be required of persons (16 years old or over) box trapping rabbits on land not under their ownership or control.

Regular trapping licenses apply to the taking of furbearing animals, and since rabbits are not considered to be furbearers, trapping licenses do not apply. It is unlawful to set steel traps for game animals. Since rabbits are defined by law as game animals, they may not be taken by steel traps. They may be taken with box traps throughout the year.

RARE VISITOR TO NORTH CAROLINA

Jay Johnson, State Museum exhibits designer, adds the finishing touches to a fulvous tree duck, the first of its kind to be displayed in North Carolina. The bird was one of a flock of 35 that visited Orton Plantation, near Wilmington, last November. It died of unknown causes and was donated to the museum by Kenneth Sprunt.

The fulvous tree duck is a rare visitor to the state. According to Birds of North Carolina, the species first appeared in 1886. It was not recorded again until 1949 when two were seen near Southern Pines. In January, 1960, three tree ducks visited Orton Plantation, with two of them lingering until March.

During the past winter, fulvous tree ducks appeared in several coastal areas, according to Harry T. Davis, director of the State Museum, who is keeping tab on their visits. Besides the 35 that visited Orton, the species has been seen in Carteret County, Cape Hatteras National Seashore, Lake Phelps, and Lake Mattamuskeet. Hunters reported taking 10 tree ducks: 7 from blinds on Bodie Island at Cape Hatteras Seashore, 2 at Lake Mattamuskeet, and 1 on Roanoke Sound.

The natural range of the fulvous tree duck in North America is from central California to southern Louisiana and southward into Mexico. Its range in the world is quite unusual in that the species is found in four other widely scattered places: India, East Africa, southeastern South America, and northern South America.

Let's hope this long-legged, long-necked visitor will become a native Tarheel.

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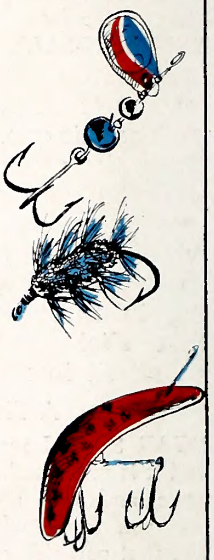
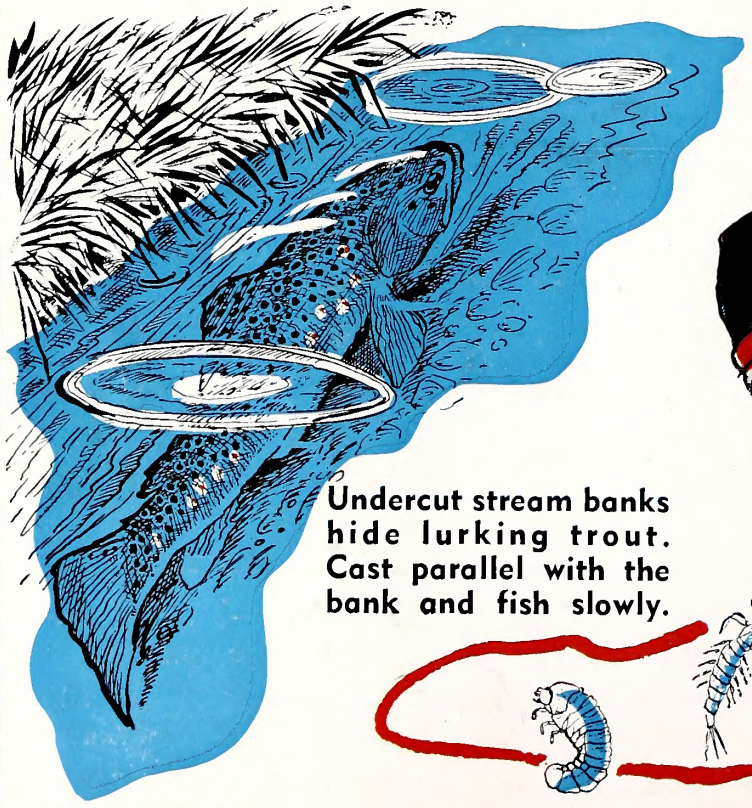
Spring TROUT FISHING

Early Spring Trout Lures



Early trout fishing may require spinners, streamers, or even live bait for best results.



Undercut stream banks hide lurking trout. Cast parallel with the bank and fish slowly.

Felt-soled wading shoes worn over stocking foot waders cling to slippery rocks and help fast-water traveling.

Natural Baits

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Wildlife in north carolina

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may 1961

Born Wild

Fawns of the white-tailed deer are born in the wild, and it is Nature's design that they grow up wild. But unfortunately, all of them do not have this opportunity. Every year, a number of fawns are picked up by well-meaning persons who discover their hiding places. These well-meaning persons claim the fawns have been deserted and they have rescued them from sure starvation. But the truth is that doe deer do not desert their young. Until fawns are strong of body, they are hidden by their mothers who return at intervals to care for them.

It is a game law violation to kidnap a fawn, but more than that it is a crime to commit them to the world of man where they either die from a diet of cigarette butts, candy bars and soft drinks, or survive to become half-wild, sometimes dangerous pests.

Photo by Jack Dermid

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

TERRY SANFORD
Governor

North Carolina Wildlife Resources Commission

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COVER

The Tarheel boating family looks forward to the month of May as the opening of the pleasure boating season in North Carolina. Skipper, our symbol of the happy and safe boater, loads the whole family into his boat for a day on the lake. And like every smart boater, he's sure that the required safety equipment is on board. You don't have to put a life jacket on the family pooch, as cover artist Bill Ballard has chosen to do with our May painting, but all other passengers should have adequate life preservers ready at hand. As Skipper says, "It's better to be safe than sorry."

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

* * *

SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Some Practical Considerations In Wildlife Management

The practical way — and surest way — to better hunting is to manage existing game species and habitat for peak production.

EFFECTIVE game management involves doing things which are practical and productive, and *not* doing those things which are impractical and unproductive. Applied to everyday business this statement would appear to be absurdly obvious. But in game management, choosing between these two courses continues to be a real problem. This is because the wildlife administrator is frequently faced with demands for services which he knows are not practical and which will produce very little or no game.

The body of enthusiastic interest surrounding wildlife and wildlife management is truly one of the great phenomena of our times. Few other movements engender such breadth of interest and support. How many other groups have brought about the establishment of their own regulating agency in the state government and then provided for its entire support by taxing themselves?

The intended purpose of this enthusiastic interest is to maintain and improve hunting and fishing. This has resulted in a close working relationship between the sportsmen and their regulating agency; in our state sportsmen's efforts created the North Carolina Wildlife Resources Commission. The various aspects of the Commission's program are subjected to close scrutiny before approval. Projects must be in line with proven procedures of practical worth, meeting three basic requirements:

1. Projects must be biologically sound and productive.
2. Projects must make the "product" equally available to all.
3. Projects must be practical and realistic.

In the day-to-day administration of these programs we often receive requests for action which do not meet these requirements. Some fail to take into account the basic biology of the species concerned. Some tend to ignore the no-favoritism rule. And others would involve costs completely beyond our means. We have attempted to list here some of the more frequent requests which we are forced to turn down because they do not meet the practical basic requirements of a sound productive wildlife program. And we have also indicated, as briefly as possible, the practical solutions to these problems.

Restocking Deer

We receive several requests each year for deer to restock a particular piece of land. We have to say no to most of these requests since experience has demonstrated that the practical approach is to restrict deer stocking to wooded areas of 10,000 acres or more in one contiguous block on which all wildlife rights are conveyed to the State either through long-term lease or outright purchase.

Such areas must then be placed under the supervision of a full-time refuge protector who protects the brood stock from illegal hunting, stray dogs, and wild predators. The right way is expensive, but any other way is not effective. Effective progress in this field requires that we pick our areas carefully and set them up if and when we have the money.

It has been shown that no lasting benefit can be obtained by planting deer on small areas. But restocking on 10,000-acre or larger plots—with adequate protection—brings success.

Restocking Small Game

Each year we receive inquiries for sources of small game species. Most sportsmen now realize that release of pen-reared quail is ineffectual and we don't get as many requests as we used to. Inquiries about squirrel shortages usually end with a request that we close the season for a year or two. However, the rabbit enthusiast is still a most persistent "stocker". He wants to know where he can get rabbits to release and what we would advise about importing Kansas jack rabbits and San Juan hares.

The practical answer is, of course, that the eastern cottontail is the species proven by centuries of evolution to be the best adapted to North Carolina. Jack rabbits do not survive here. The San Juan may survive but he is a burrower and therefore not especailly good for beagling and his burrows create pasture hazards—places where cattle and other livestock break their legs.

Our three species of small game—quail, squirrels and rabbits—absorb about 75 percent of all the hunting pressure in this state. They are all prolific breeders and well adapted to our climate and vegetation. Where man has altered the vegetation through farming or forestry, food and cover deficiencies can usually be remedied through standard practices and use of materials available from the Wildlife Resources Commission. Habitat improvement has proven to be the practical way to restore small game. Restocking and closed seasons may appear to be more spectacular, but are not nearly as effective.

Restocking Wild Turkeys

We occasionally receive requests to buy wild turkeys from game farms for restocking. Where turkeys have completely vanished—as in some of the western parts of the state—restocking is the only way to restore this magnificent game bird. But use of so-called "wild" game farm stock is open to considerable question. This type of stock is no better able to take care of itself than game farm quail and the proportion that survives is about the same. There is also an added risk, since pen-reared stock are often carriers of certain domestic diseases which could spread to the wild birds.

We are restocking turkeys. But we are using wild-trapped stock. Here again, it is expensive, but it *is* effective. Birds stocked during the past few years on Flat Top, Thurmond Chatham and South Mountains wildlife management areas are doing well. Other areas are due to be stocked as birds become available.

New Birds From Around the World

Each year we receive several inquiries about how to raise and/or release chukar, pheasants, coturnix and other foreign birds. These are, of course, beautiful and interesting birds. But of the thousands of releases made in North Carolina, none has been successful to the point of establishing a self-sustaining population. (The only known exception to this is the colony of ring-necked pheasants on the Outer Banks near Buxton.)

The chukar is a native of the hot, arid sections of the Eurasian continent and we have no place in this state that approximates these conditions. The ring-necked pheasant apparently cannot tolerate our summer temperatures and low-calcium soils. The coturnix quail apparently cannot survive and reproduce under our conditions. Somebody may someday find a new game bird for the southeastern United States, but he will have to look long and hard before he finds a bird that will surpass the sporting qualities of the native bobwhite quail.

Restocking Beavers

These secretive creatures occasionally become the center of misunderstood attention. Those who request beavers to stock their streams do not rea-

In these days of scientific know-how, a duck marsh could be created almost anywhere. But wildlife dollars will go farther if existing marshlands are made into better marshlands.

The jack rabbit is at home on the prairies and deserts of the West, but he is out-of-habitat on Tarheel farms. Better hunting can be obtained by properly managing native game species.

Fish and Wildlife Service photo by W. P. Taylor

lize the amount of damage this species can do to valuable timber. And when beavers run out of timber and brush for food they resort to what they can find; fruit trees, corn and other agricultural crops are often damaged.

The beaver is a wilderness animal which cannot tolerate too much human interference and which cannot be tolerated by too many human interests. Most attempts to restock in this state have failed because of incompatibility with people and their primary land management interests. The beaver fitted in very well in the wilderness areas of our early history. Now he is relegated to places where he can be given special protection. One such place is the Commission's Sandhills Wildlife Management Area, which contains the major portion of the state's population of this species.

Havens for Waterfowl

From time to time we receive requests to establish major waterfowl wintering grounds in the central and western portions of the state. One practicing conservationist summed the problem neatly when he said that this would be entirely feasible if there were no monetary limitations.

The thousands of acres of sounds, swamps and marshes in the eastern North Carolina include some of the best wintering grounds for waterfowl to be found in the entire United States. Even the second best in this section can be developed much more inexpensively than the best that can be found in the Piedmont and mountains.

Waterfowl need more than water. They also need food. Power reservoirs are usually devoid of waterfowl foods and their normal pattern of water level fluctuation is almost diametrically opposed to that necessary for waterfowl food production.

On the other hand, on many eastern marshes and sounds we don't even have to worry about water level manipulation since Mother Nature takes it upon herself to produce preferred foods abundantly. A thousand dollars spent on the coast can produce ten times the waterfowl it would produce inland. Practical waterfowl management tells us to spend our waterfowl dollars where they will produce the most birds.

It Costs Money

In the North Carolina situation most of our power reservoirs are located in the industrial Piedmont—the most densely populated section of the state. Concentrated here too are many of our waterfowl hunters. It is only logical that these hunters would want their hunting closer to home. This desire naturally brings about a demand for developing reservoirs for waterfowl.

It is possible, of course, to produce waterfowl areas in the Piedmont, but the cost of doing so should be balanced against comparative results and the availability of funds.

Should Quail Season Open Earlie

Quail Wings Tel

by Andrew J. Weber
Wildlife Biologist

SINCE 1957 over 10,000 quail wings have been submitted by North Carolina sportsmen to the Wildlife Resources Commission for study. The Commission provided postage-free envelopes to quail hunters throughout the state and requested that the right wing from each bird taken during the first three weeks of the season be submitted. The purpose of the study was to find out whether it would be advisable to open the quail season earlier than on the traditional Thanksgiving Day in late November.

Biologists have found that as the young birds develop, primary flight feathers are molted in a regular sequence. A careful examination of each wing enables the trained biologist to determine if the wing is from an adult or a juvenile bird, and if a juvenile, its age at the time it was taken.

Studies in North Carolina and other southeastern states have shown that juvenile quail reach the size of adults by the time they are 90 days of age. Most observers are unable to tell the difference between a 90-day-old quail and an adult, whether in the hand or in flight. Actually, birds graduate from the "squealer" class at about 70 days; thus a 20-day safety margin is included in the 90-day definition.

The present four-year study revealed that only about 3 percent of the quail population are less than 90 days of age on Thanksgiving Day (the traditional opening date of the quail season); 7 percent are less than 90 days of age on November 15; and 14 percent are less than 90 days of age on November 1.

PERCENTAGE OF QUAIL LESS THAN 90 DAYS OLD ON THANKSGIVING DAY, NOVEMBER 15 AND NOVEMBER 1

	1957	1958	1959	1960	Average
Thanksgiving Day	0.7	2.6	5.0	4.7	3.4
November 15	2.9	6.8	9.7	7.5	7.0
November 1	8.5	15.0	17.2	13.9	14.0

These percentages take on added significance when it is realized that there is a 77 percent turnover in the quail population each year. In other words *each year an average of 77 out of every 100*

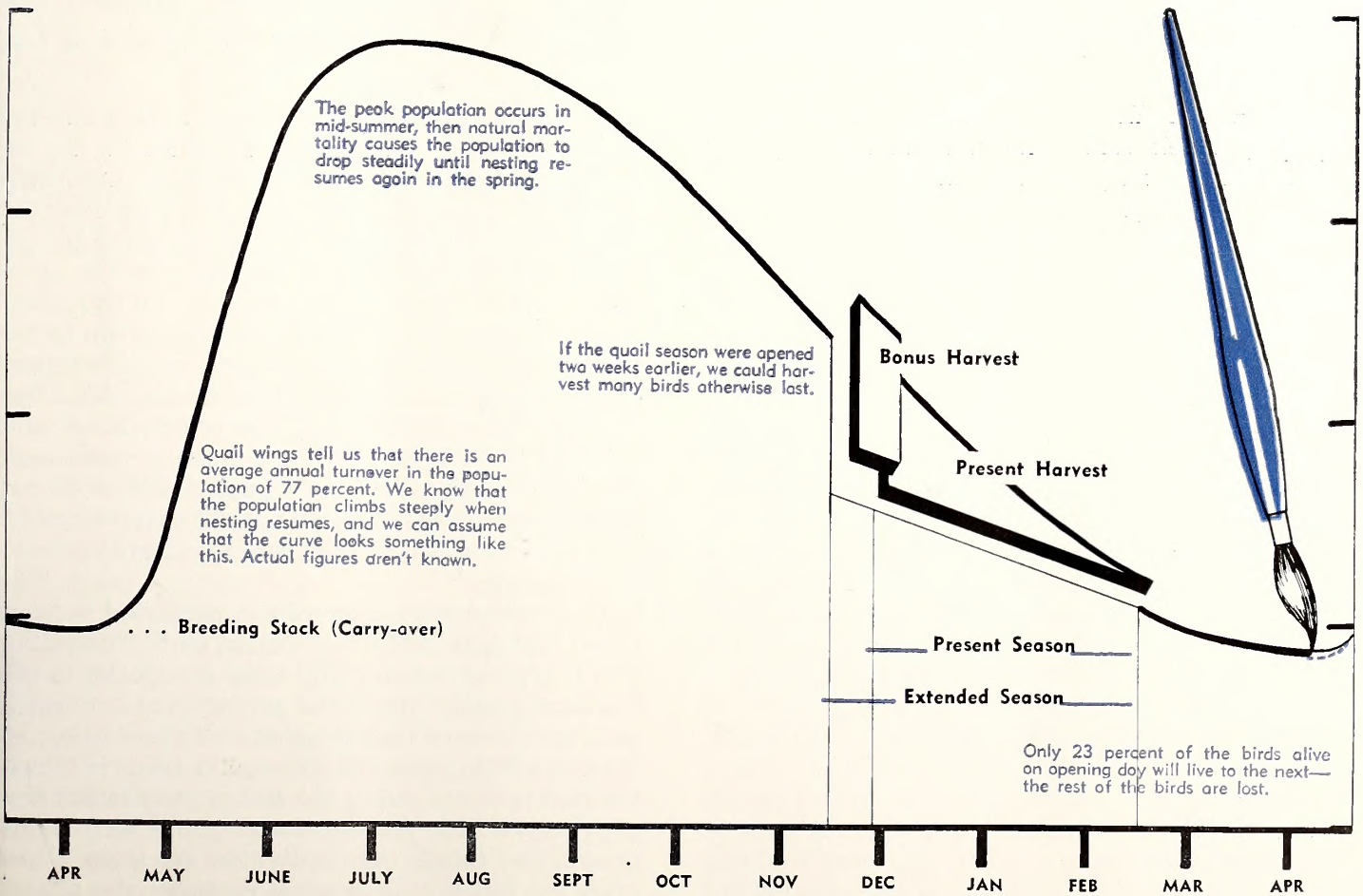
he Story

quail die and are replaced by young birds. This is the normal rate of annual mortality or turnover and is due to accidents, hunting, predation, disease, weather, starvation and all other mortality factors. It is believed that hunting accounts for only a small part of the 77 percent loss. Exact percentages of juvenile quail in hunters' bags during the four-year study were as follows: 1957—72.8%; 1958—75.9%; 1959—77.8%; and 1960—81.6%.

At this point it may be well to again state that a 90-day old quail is full-sized, capable of strong flight and not to be confused with a "squealer." At the same time, it is fully recognized that some squealers (young quail less than 70 days of age) do occur in the population in mid-November and even as late as Thanksgiving. These birds are those hatched after September 1, which is well after the normal hatching period. The percentage of these individuals is so small, however, that it is insignificant in the total fall population.

It is the objective of the Wildlife Commission to provide the greatest possible amount of hunting opportunity for the sportsmen of the state, and to allow the fullest utilization of the annual harvestable surplus of any game crops—without endangering an adequate breeding stock. Birds succumb to natural causes throughout the year but a very substantial portion of these losses occurs in the fall and early winter. Thus the sooner the season is opened after the birds become adult size, the greater the opportunity for the sportsmen to harvest a portion of those birds which will probably be lost anyway.

The results of this study indicate that if the sportsman is willing to accept 7 percent of the quail that he kills before Thanksgiving Day as being under 90 days of age the season can be opened on November 15. If he will accept 14 percent under 90 days of age the season can be opened on November 1. These earlier dates might produce a few more squealers but percentage-wise this would not be significant.



The Worm TURNS

By Duane Raver

Photos by the Author

The plastic worm could change your thinking about bass fishing. For heftier catches and more fishing fun, give it a try.

WHENEVER you suddenly discover for yourself something that 'most everybody else has known for years, it seems like news to you. So it is with a particular fishing method or lure. The plastic worm is the case in point and as an artificial lure is far from new—but still is fascinating enough to look at again.

It would be nigh on to impossible to pin down the exact date the first phony worm was offered to a fish, but it goes back at least 10 or 12 years. And it's still fooling them. Some have dubbed it the most deadly bass bait going; if this is a little strong for you, you will have to admit that it *is* mighty good.

My first introduction to the "black eel" came in Florida back in the late '40's. And although dazzling claims were being made for it even then, many anglers were reluctant to try it. When they did, they found that hooking fish was particularly tough and often the fishing was exasperatingly slow.

The early versions of the eel were 7- to 10-inch-long slivers of black-dyed pork rind. These snake-like creations were hooked onto single hooks (weedless, preferably) and fished on or near the bottom. The mess of keeping bottles of salty pork rind discouraged some. But fabulous catches continued.

It wasn't long until the plastic models hit the tackle counters. These looked (and still do) so harmless and simple that most bass fishermen hooted at them and continued throwing assorted hardware at the largemouth. The success of the insignificant-appearing, mock-nightcrawler was absolutely unbelievable. Within a season or two, hundreds of variations of the worm flooded the tackle shops: two-hooked models, some with spinners added, weighted heads, weedless hooks, metal lips to make them wiggle, brilliant colors, black and yellow striped ones, soft ones, floating ones—you name it. And they all caught bass. A few stood out while many dropped by the piscatorial wayside. The era of the worm had most certainly come to U. S. angling.

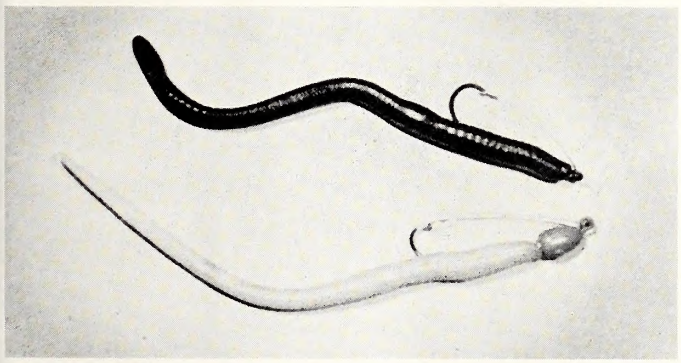
The sudden popularity of the pork rind version flared and died back to a constant glow. The action of this type of lure in many cases is superior to the standard plastic worm, but probably not so much so as to overcome the advantages of the plastic one. It takes a little more care to keep the brine in which the rind is stored out of the rest of your tackle and the cost is a little greater. The ungainly strip tends to spin and tangle even with slow retrieves. However, the fact that *at times* it outfishes the plastic

cousin is justification enough to keep it around for special occasions.

The two- and three-hooked models of the plastic worm were next in the sequence and they caught fish right from the beginning. Actually, many of them have a surprising lack of action—due apparently to the stiff monofilament nylon used to connect the hooks and the added encumbrances of more than one hook. But take fish they did—and still do. A propeller-type spinner and several red beads were added to many models, maybe adding to their fish appeal, and maybe not.

Emerging from this welter of squirming worms were about three or four that out-perform all the rest—at least for me. They are all fished in basically the same way and each has its own niche in the angling scene.

From experience I feel that baits of this type should have the following characteristics to perform best under a variety of conditions: The worm itself should be 5½ to 7 inches long, as flexible as possible, black, dark red or natural brown; it should float, and be fairly tough yet soft. The hook (or hooks) should be weedless or in such a posi-



Try one of these. The top lure was made from a weedless hook and separate worm; other was manufactured as a single unit.

tion as to be as snag-proof as possible, not over two in number (actually one is plenty) and size 1 to 3/0. The whole rig should be weighted slightly. This means by a split shot or weighted jig head not over 3/8 ounce.

You will be amazed at how few of the rigs on today's market fit all of these "requirements." One answer is to buy the worms and hooks separately and make up your own. Select several colors to have on hand and carry a few "spares." A number 2/0 hook with a good weed guard will work well. Check the hook's point and hone it if it's the least bit dull. A hook with a weed guard always seemed to me to be "fishless" as well as "weedless." The fact that hooking fish with this rig is no real problem has altered my thinking considerably. Still it's best to choose a hook with a fairly soft weed guard and make sure that it is constructed in such a way that it springs out of the way on contact.

In constructing the lure, simply thread on the worm, poking the point out about the length of the shank. This puts the bend of the hook an inch or so up the body of the worm. Clamp on one small shot (don't damage the line) right at the eye of the hook. One such rig is shown (left), one that works well under most conditions.

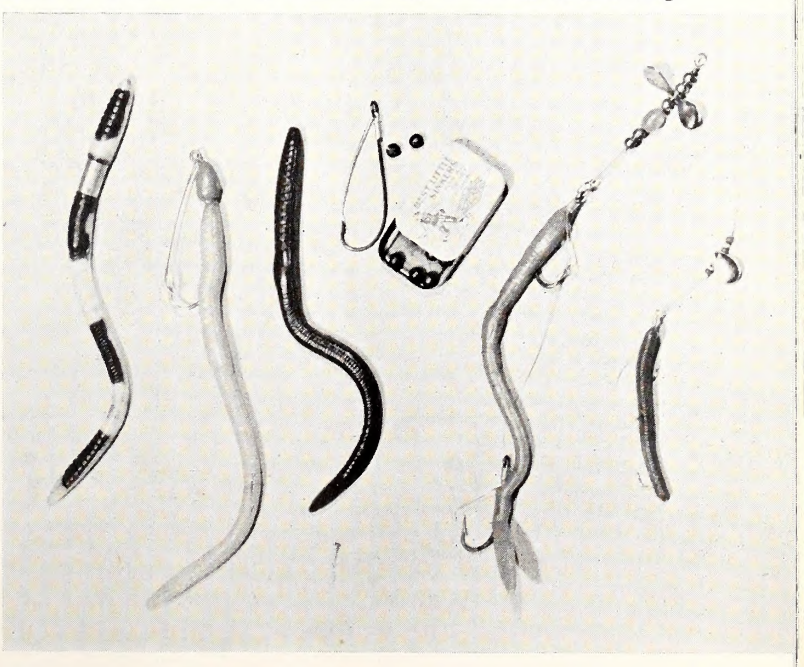
In the same picture you will see a very similar, commercially available rig, all ready to go. It is available in ¼, ⅜ and ½ ounce models and is ideal for farm ponds, lakes and deep reservoirs. So far as we know it's about the only one employing a single weedless hook (and a good one), available in a variety of weights and colors, with a good quality, flexible worm. It's called the "WJC" Weedless Jig Crawler, manufactured by the Lazy Ike Company, Fort Dodge, Iowa.

The farm pond was made for the plastic worm (or vice versa) and it's a real killer here. So far, bass have been its only victims for me but crappies have been taken by other anglers, and a smaller edition with a small hook added in the tail should be deadly for bluegills. Apparently no pond is too stumpy for the weedless rig. Vegetation on the pond bottom may hinder operations a bit, but the lure slips through weeds with amazing ease.

How do you fish the critter? Answer: any way that catches bass. It may take you a half a dozen trips to catch on to the "right" method. Then on the seventh outing, it doesn't work. I believe that it's best to settle on one approach and exhaust it before going off on another tangent. Here's one way—maybe not the right way nor your way, but it takes bass.

Select an area in the lake or pond that has produced before. A flat area near a deep channel

Plastic worms are available in many shapes and sizes. Bass seem to prefer black or red ones six to seven inches long.



is often ideal for the worm. Bass apparently move out of the deep spots and roam these flats. These areas are usually from three to five feet deep. Long casts are ordinarily unnecessary. Let the worm sink, but be ready to go into action; bass quite often take the squirming morsel as it filters down to the bottom.

Twitch the lure along on or very near the bottom as slowly as your patience will allow. Watch the line constantly; if it begins going out or if you you feel the slightest bump, allow the line to slip off the reel immediately and without any tension. (Here's where the open-faced spinning reel has advantages.)

How long do you let Mr. Bass carry the lure around? Some experts allow a minute or even longer; I think a count of 10 is plenty and often less will do the trick. So far, I've found only minor difficulty in hooking fish. Most are hooked in the jaw with very few having "swallowed" it. Set the hook very decisively.

Nine times out of ten the first action of the bass is a rocketing jump. Large fish may run first but even they can't resist taking to the air at least once. It appears that fish jump more often when hooked with the worm than with most other lures. The critical time, then, is that initial jump; hold him and he is usually yours.

Bluegills and small bass will tug sharply at the upright end of the floating worm and ordinarily there is no mistaking the pickup of a good-sized bass. But there is no telling his size by the way he moves off. A six-pounder barely moved away with the lure last fall and I almost failed to let him have it, thinking it was a 10-incher. I see practically no point in allowing the bass to strip off yard after yard of line before setting the hook; but you do what produces best for you.

Exactly how bass take this lure I'm not sure. Generally they hit minnows and plugs head-first and I think most big bass grab the worm in this manner. Actually the worm can be retrieved much like a slow moving plug (use a snap-swivel to prevent line-twist in this case) several feet off the bottom and bass will nail it. Here you should strike back at once. Most worms float and by using a light hook, no snap and no shot, you can fish them right on top. Many anglers have fooled nice bass this way and it's worth remembering.

It's a type of fishing that may take awhile to get hold of you, but once it does, you're hooked. The greatest danger here is relying on it to the exclusion of other methods and lures. It is not fool-proof (what is?). It did increase my catch of bass about 50 percent and so far I've yet to be skunked with it—and this is more than I can say about most other bass baits. Once you gain confidence in it and its ability I think you'll know why, once and for all, the worm has definitely turned.

Public HEARINGS

● HEARINGS ON PROPOSED 1961-1962 HUNTING REGULATIONS WILL BE HELD IN EACH OF THE NINE WILDLIFE COMMISSION DISTRICTS SOON

DATE	DISTRICT	TOWN
MAY 23	9	SYLVA
MAY 24	8	MORGANTON
MAY 25	7	DOBSON
MAY 26	6	ALBEMARLE
MAY 29	5	GRAHAM
MAY 30	4	ELIZABETHTOWN
MAY 31	3	ROCKY MOUNT
JUNE 1	2	NEW BERN
JUNE 2	1	EDENTON

All meetings start at 7:30 p.m., except at Elizabethtown where the meeting begins at 8:00 p.m., and will be held in the county courthouse except at Rocky Mount, where the hearing will be in the city court room.

● THE WILDLIFE RESOURCES COMMISSION WANTS YOUR OPINIONS AND RECOMMENDATIONS. YOUR DISTRICT HEARING IS YOUR OPPORTUNITY TO PRESENT SUGGESTIONS.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Boat Accident Reports Required

Wildlife protectors have been instructed to ride hard on persons involved in reportable boating accidents who fail to file reports on same. The Boating Safety Act of 1958 requires operators of boats involved in accidents causing loss of life, injury or property damage in excess of $100.00 to file a report to the Wildlife Resources Commission within ten days. Persons failing to file proper reports will be prosecuted. Statutory fine for failure to report boating accidents is $50.00. Accident reports may not be used as evidence in any court proceedings involving boating accidents.

Boat Trailer Law Assured

The 1961 General Assembly has amended existing towed-vehicle laws to permit light trailers such as those used for hauling boats to be towed at normal highway speeds instead of the 45 miles per hour restriction formerly imposed. The law imposing the 45 mile restriction was intended to curb speed on heavy trailers or towed automobiles, but failed to exempt light trailers.

Hyde County Shooting Hours

Waterfowl hunters going to Hyde County for their shooting will be allowed shooting hours established by the U. S. Fish and Wildlife Service instead of the four o'clock closing time imposed by a local law. A bill to remove the 4 p.m. restriction is expected to sail through both houses without encountering any difficulty. Numerous waterfowl hunters had complained of the early closing hour.

Reminder to Boat Owners

The Wildlife Resources Commission has reminded boat owners that they must have 1961 boat registration certificates in their possession before operating boats powered by machinery of more than ten horsepower on the waters of the state. New boat owners who want to get their craft on the water immediately may use a bill of sale in lieu of a registration certificate for twenty days or until a registration certificate is issued, whichever is the shorter period.

Arnold Dalrymple, Wildlife Protector, Dies Suddenly

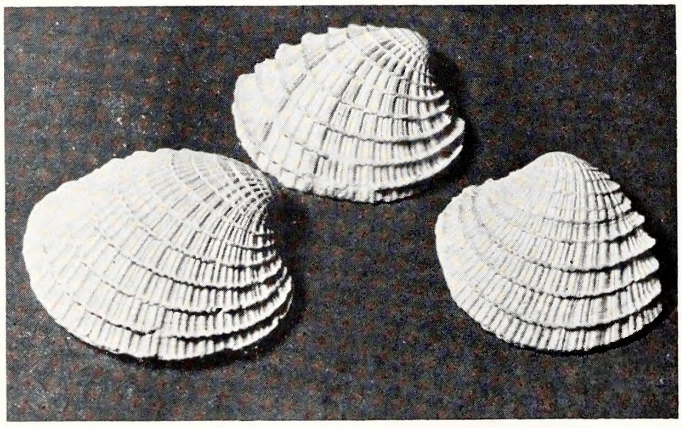
Arnold R. Dalrymple, 51, died suddenly at his home in Murphy on March 14. Wildlife protector for Cherokee County since April 16, 1948, Dalrymple was highly respected among his fellow officers and by the sportsmen he served. He is survived by his father and his widow.

Scallop

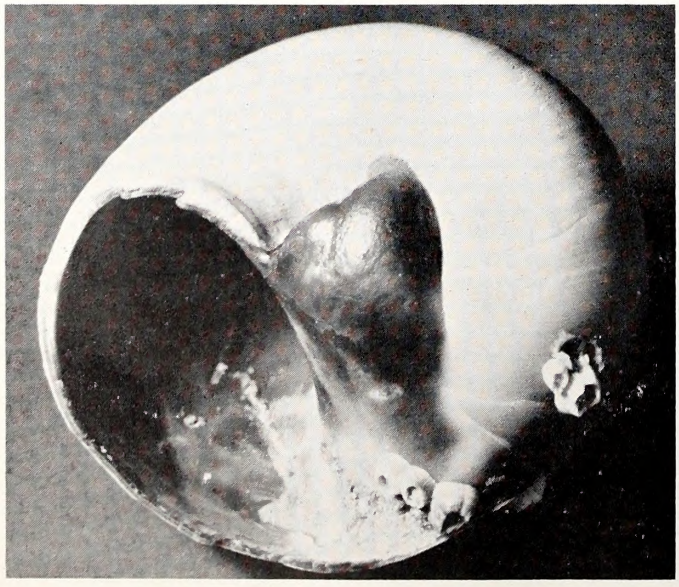
Treasures on the Beach

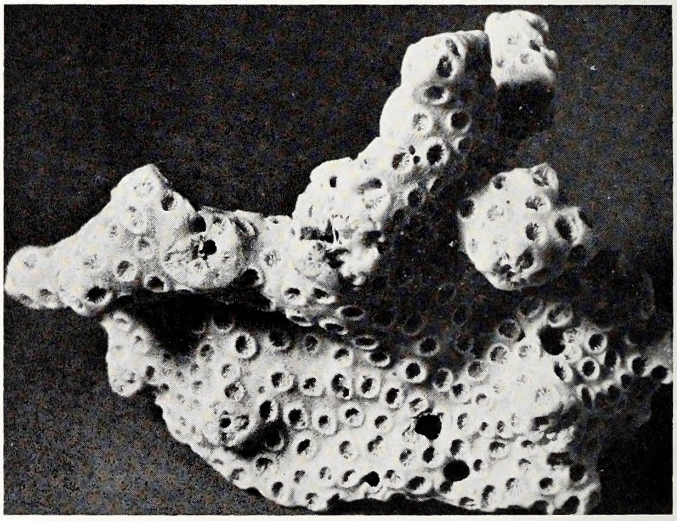
Photo Feature by Jim Lee

Along North Carolina's beaches
many treasures for the shell collector.

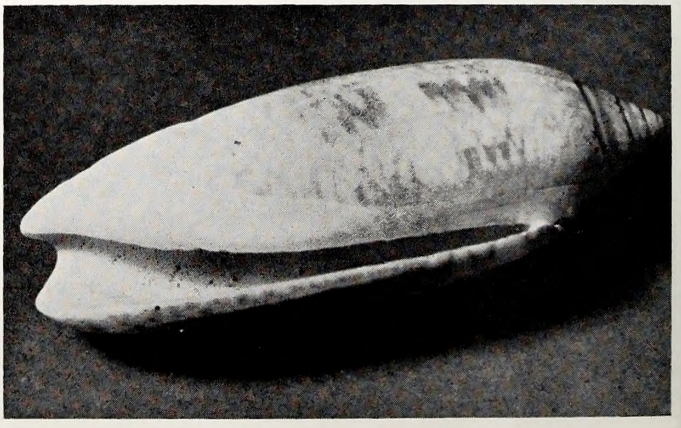


ABOVE: The delicate cross-barred Venus is a common shell of the Carolina coast, frequently found even in fossil deposits. BELOW: The shark's-eye is a snail of the sea, sometimes reaching three inches across. This one has small barnacles.





ABOVE: A colony of branching coral, typical of the bits washed ashore along the southeastern North Carolina coast. BELOW: Another of the sea snails, the lettered olive shell is well-distributed and fairly common along the entire coast.



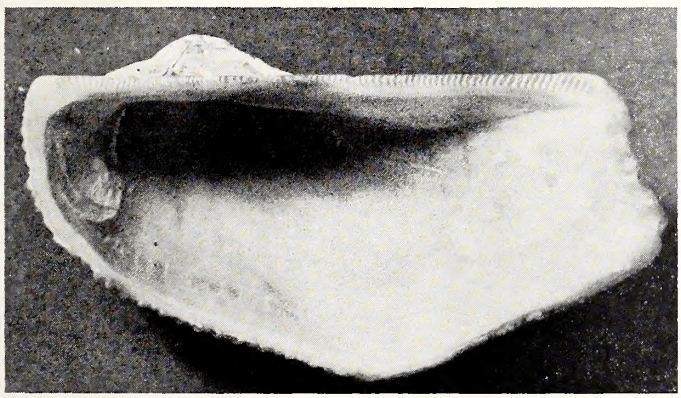
YOU don't need to have a copy of Captain Kidd's own map to find hidden treasures on the beach. All you need is a little time and a pair of sharp eyes to fill your knapsack with shells that rival, for beauty, all the pirates' treasures of Spanish doubloons and pieces of eight.

The variety of shells found along the North Carolina coast is astounding. Many of the East Coast species of shells are limited to either the northern or southern coast, with Cape Hatteras as the dividing line. Thus the beachcomer who seeks a good collection of shells can find a wider geographical variety in North Carolina than almost anywhere else. The ones pictured on these pages are only representative samples of the diverse groups of marine animals whose skeletons are washed ashore, ranging from coral to the shark's eye.

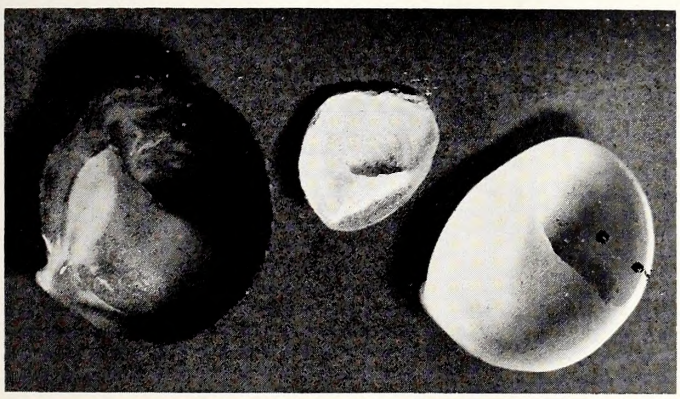
With the exception of coral, most of the prizes found by the beachcomer are mollusks. Two major divisions are shown, the univalves and the bivalves. The univalves, or sea snails, are close relatives of the land snails and have a single shell that usually grows into a spiral. The bivalves, related to the fresh-water mussel, have two hinged shells.

Along the Carolina coast there are several shells of economic value. The oyster industry, a major part of the North Carolina fisheries, depends on a bivalve that produces succulent food. Likewise, the scallop and clam, both bivalves, produce important food for the table.

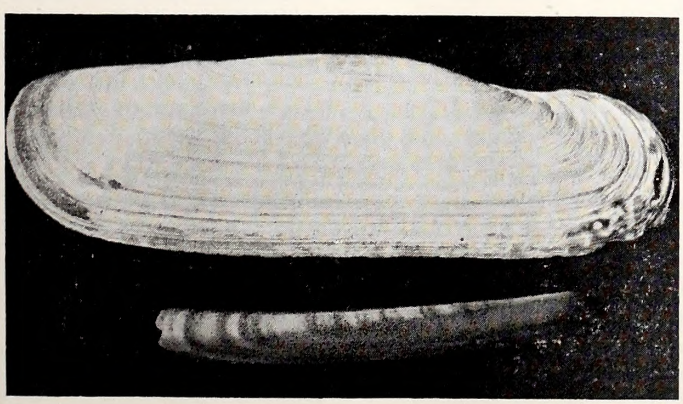
Shell collecting is one of the most popular—and most universal—activities of vacationers at the shore. These souvenirs of the sea are yours for the taking.

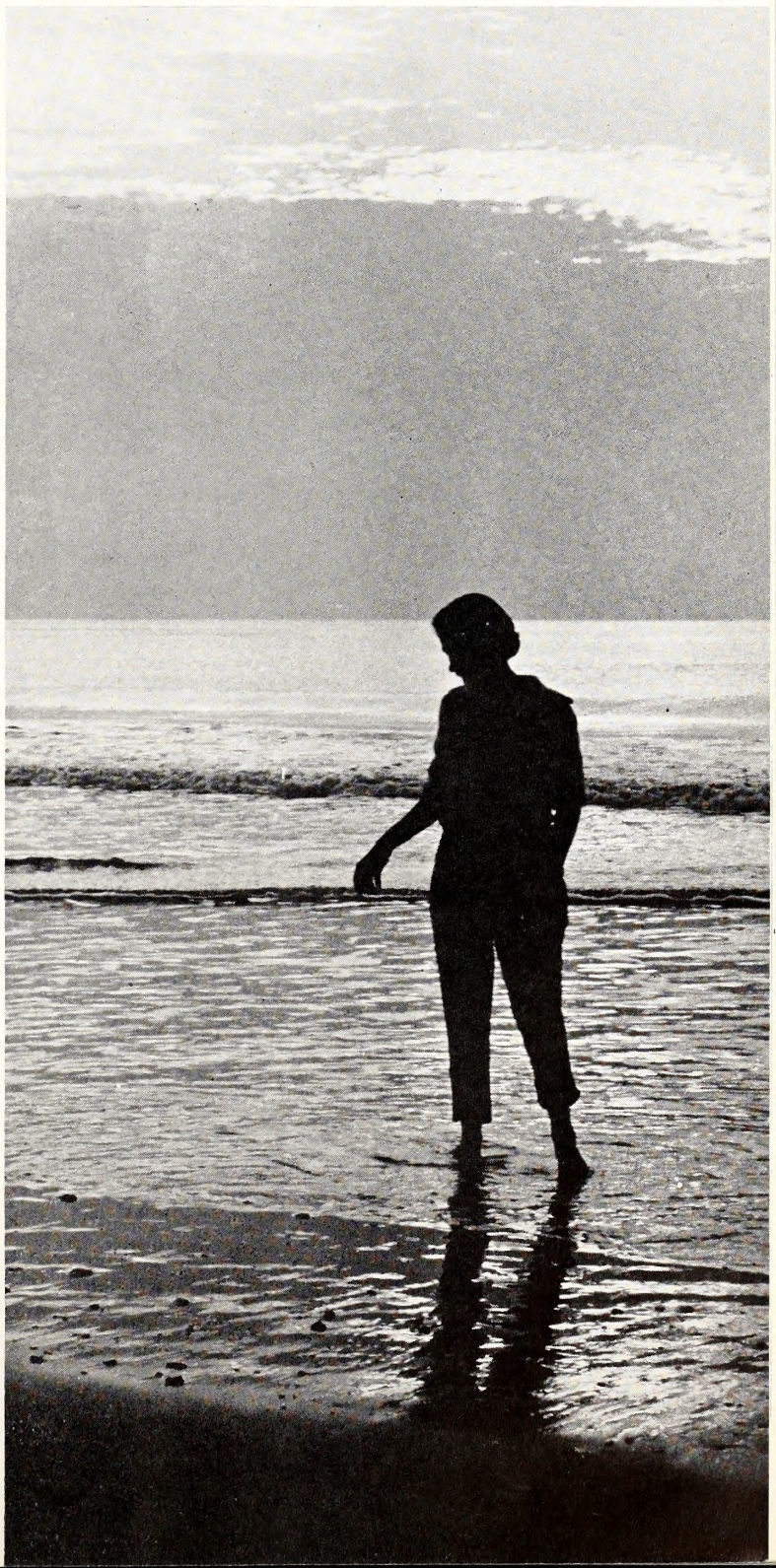


ABOVE: The mossy ark shell is covered with moss-like growth when living. All the ark shells have a toothed hinge line. BELOW: The colorful slipper shells come in a variety of sizes and shapes, but all have a delicate shoe-like form underneath.



BELOW: The stout razor clam and the little green razor clam are common shells of the Carolina surf. The animals live in the sand, and can bury themselves with jet propulsion to hide. RIGHT: A beachcomer searches for new treasures at dawn.





Jim Lee

Drownings in North Carolina Farm Ponds

A Needless Waste of Life

by William J. McDonald
Water Safety Specialist
American National Red Cross

DID you ever have the experience of recovering the lifeless body of a person who had drowned? Or did you ever stand by helplessly and watch someone who was drowning fight for his life—stand by because you wanted to help but did not know what to do? Did you ever have the experience of going to the home of a lifelong neighbor to tell him of the drowning of his son, an accident which perhaps had happened in **your** farm pond?

These are not very pleasant thoughts, but these will be the thoughts for a rather large number of unfortunate North Carolina families in the coming year. As a matter of fact, drowning is the second highest cause of accidental death among rural families.

There is no more needless means of dying than that of drowning. The care given to even a few common-sense water safety rules will make a great deal of difference. Perhaps the worst aspect of farm pond drownings is the fact that the largest number of deaths occurs among the youth group—youngsters who have not yet had a real taste of life. When death ends the opportunity to develop and when the form death takes is so unnecessary, this is truly regrettable.

There are in this country today more than one million farm ponds, and about 80,000 additional new ponds are added each year. In North Carolina alone there are more than 40,000 such ponds, and there are about 3,500 new ones constructed annually.

The creation of these impoundments has done much to make a finer life for rural families in recreation, economy in agriculture, and reserves of water during time of drought. Unfortunately, these same ponds are death traps. Many fall into them accidentally or use them for swimming without consideration of even the basic rules of life saving and water safety. It is this latter situation that invites our attention.

A Design for Tragedy

To begin, most of these farm ponds were never really designed with swimming in mind. This is true for several reasons, which include the following: often there are stumps and other hazards in the bottom of the area which make for great danger, particularly when jumping or diving into unknown waters; pond bottoms are uneven, with holes left by the removal of stumps and rocks—thereby creating step-offs for the unsuspecting.

In the vast majority of cases, the water itself will not satisfactorily pass a health standards analysis by the county health officer, because of pasture sewage drain-off and lack of other filtration. The primary and glaring fault in choosing these farm ponds as swim sites, however, indicates that almost all of these drownings take place in unsupervised and unprotected areas. Oftentimes farm ponds are used for swimming without the knowledge of the owner, and herein is a special problem to consider.

Bill Ballard

Data compiled by the State Board of Health reveals that almost half the total number who lost their lives during the past year were in the 15-19 age classification, and the second highest group was in the 10-14 age classification.

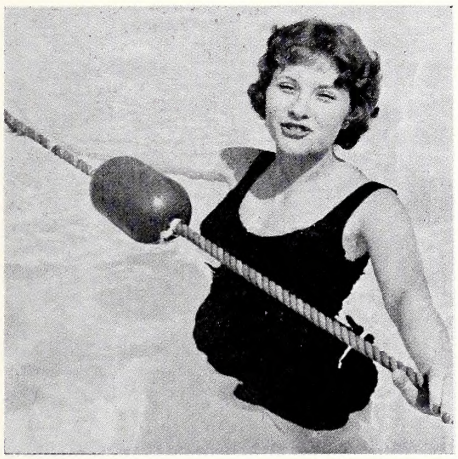
Further, race was no special barrier to the Grim Reaper in this study since there was an almost equal number of drownings among Negroes as among white farm families. However, of the total of 30 drownings, only three involved females.

The Waste of Human Resources

There are several ways to approach this problem of cutting down on the waste of human resources. Let us consider the problem from the owner's standpoint for a moment, and give thought to the obligations of the farmer on whose land a farm pond is located.

If the water is unfit for swimming, or if there are hazards, or if he simply does not wish to have people using his pond for swimming, he might well invest the little time required to say so by placing warning signs around the area. Then the very least he will have tried to do what is right and say to all who trespass that there is danger.

However, if the owner does recognize that there is nothing quite like a wonderful swim in the good old summer time (after all, one hundred million Americans will be in or on the water in 1961!), then he might go so far as to rope off the swim area with a floating line, thus separating the deep water from the shallow and providing a life line.



Jim Lee

A floating line in pond keeps swimmers within a safe zone and also provides them with support if a swimmer is in trouble.

He might render a real service by placing in several places around the pond used tractor inner tubes. Lengths of light line attached to the inflated tubes make these excellent rescue devices which can be thrown to a person in distress. At the same points he would do well to place a cane pole or other means of extending one's reach to a drowning person.

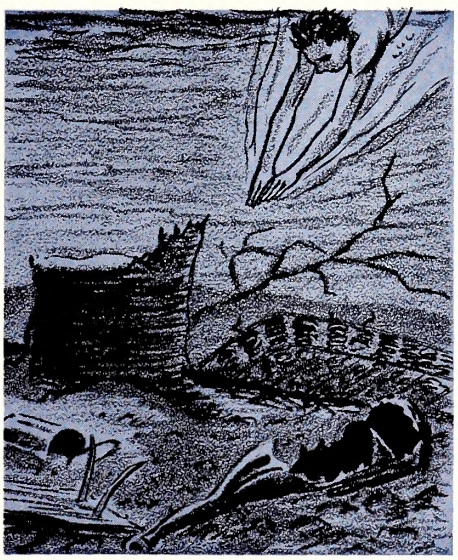
If the pond owner wants to render the greatest service, he can arrange to have on hand someone to serve as life guard during specified swimming hours. If this is difficult to plan, why not think in terms of the very people who are most interested in swimming? He can arrange for some of the 15-19 year olds to learn the basics of water safety instruction. Such training is available at most American Red Cross chapters over the country.

There are many life saving and water safety demonstrations conducted each summer throughout the state with this special purpose in mind—showing how to rescue a drowning person even though the rescuer himself may be a total non-swimmer. These demonstrations are done in most of North Carolina's counties annually by local 4-H Club youth and are supported by the interest in the farm pond problem on the part of the State Agricultural Extension Service.

Among other items presented in these demonstrations is information on the methods of artificial respiration—the skills of saving human life when breathing has stopped.

The Swimmer's Responsibility

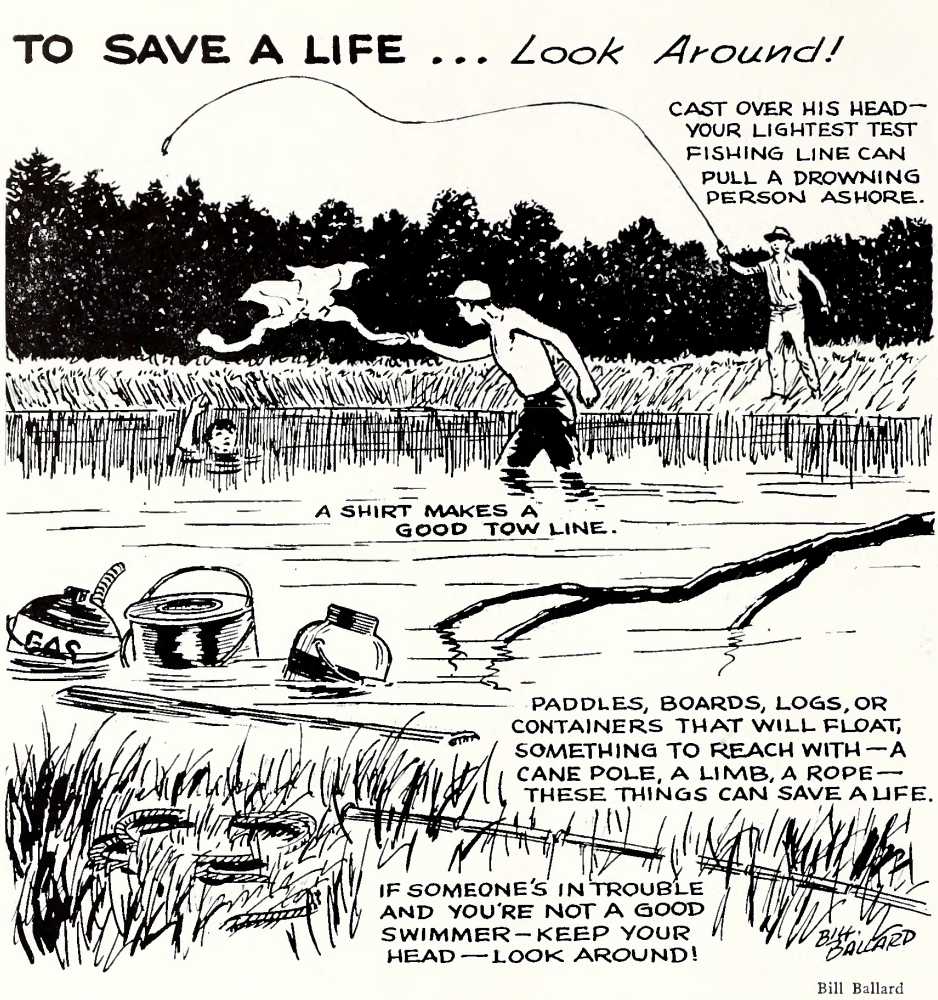
While the property owner has many obligations, the greatest responsibility must be that of the swimmer. There are many specifics, but plain common sense is fundamental to all instruction. For instance, no person should ever swim alone, nor should one dive into unknown water. It should be remembered that the wise person is one who waits several hours after a meal before swimming. Also, one should not enter cold water when he is hot since this invites cramps or perhaps some more serious trouble.



Bill Ballard

Here again, a few minutes spent in learning the basic essentials of self-rescue or how to save the life of another swimmer is time well invested. Last choice for anyone not actually trained in swimming rescue should be the decision to jump into the water with a drowning person.

Throwing a buoy, pushing out a floating board, standing in shallow water and flipping one end of a shirt or towel to the victim to pull him in are much safer methods of rescue and just as effective. These same rescues can be made from a pier or dock, but caution should be taken to lie down on the dock in order to lower the center of balance and avoid



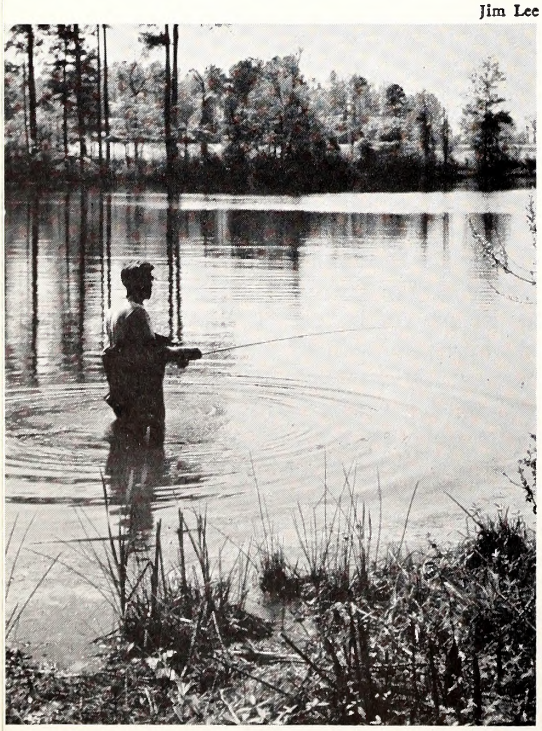
Bill Ballard

being pulled into the water by the victim.

If there is anything more tragic than one drowning it is a double drowning in which the original victim pulled the would-be rescuer into his own predicament.

Wading fishermen should be especially wary of holes and drop-offs in the water.

Jim Lee



Tips for Self-rescue

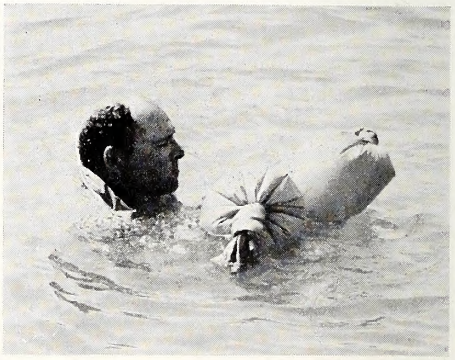
In considering self-rescue, one must face the possibility of finding himself overboard fully clad in heavy clothing. This is particularly true for construction workers, farmers, and sportsmen who are hunting or fishing in cold weather. Should a person be placed in this position, he has but to swim as one normally would—except that he must use a stroke which keeps his arms under water. By pausing from time to time to roll over on his back and float, or by resting in a floating position—with some minimum help from the arms and legs—he can maintain his position at the surface.

Even if you should fall in with hip boots or waders on, you do not have to give up. In this case, you should quickly get into a position at the surface with your face up and legs extended out straight. Then take position that would equal the body position of a person sitting in a chair—except that it is done on the back—one's head, chest, and lower legs are at the surface while one's hips are lowered to what would be a seated position if you really were in a chair. In taking this position, a considerable amount of air is trapped in the lower boots—thereby keeping you comfortably at the surface without strain. It is difficult to get very far in a hurry in this position, but a cool head at this time is a guarantee for getting home for dinner, even if a little late.

A Question of Staying on Top

Careful study of the whole business of drownings indicates that the vast majority of these deaths occur within 15 feet of some form of safety—the bottom where the victim could have touched, a floating object, a pier or dock he could have reached, and so on. Therefore, it is not usually the case of a long swim to reach safety, but rather a question of staying on top until rescued or getting in.

A good thing to remember is that there are many ways to help someone which require no special training. A fisherman having very little skill with a bait rod can cast a plug beyond the drowning person so that the line or plug can be retrieved to the victim's grasp and held by him while the fisherman handlines the victim to safety (it can almost be done with thread!). A gasoline tank will float and can be held, an oar or paddle extended, a thermos jug thrown to a drowning person—all these can be done by any person. Obviously, a life jacket can be thrown as well.



Jim Lee

Author shows how to use inflated pants for self-rescue should your boat capsize.

In summary then, this problem of farm pond drownings can be greatly reduced, but it requires some help from many sources: the owner, those who swim, and those willing to help with the educational efforts currently underway to "waterproof" our human resources.

It is a strange paradox that soil and water resources should be economized with the resultant cost in human life. Among the 30-odd farm pond drownings which will occur in North Carolina this year, there **could** be among them another potential Luther Burbank, a second Booker Washington. In any case, even one such drowning is expensive—and such a needless waste.

Ted R. Mitchell New Farm Game Project Leader

TED R. MITCHELL, supervisor of the Central Wildlife Management Areas since 1959, has been appointed project leader of the Small Game Restoration Project, succeeding Donald J. Hankla. Mitchell, who has been a game biologist in North Carolina since 1947, took over the important Game Division position in mid-March, following Hankla's resignation to join the U. S. Fish and Wildlife Service as a field waterfowl biologist.

In his new capacity Mitchell will be responsible for the farm game program, with nine district biologists under his supervision. He will also be responsible for production of habitat improvement plant materials at the Chapel Hill Nursery. He will be stationed in the Raleigh office.

Ted R. Mitchell

Mitchell has held various positions with the Commission since it was organized, coming to North Carolina after working with the Wildlife Management Institute and the Western-Winchester Division of Olin-Matheson. He is a native of Virginia.

Donald J. Hankla

Hankla joined the Wildlife Commission in 1951, served as District 5 game biologist for two years, and then operated the Wildlife Foods Nursery at Chapel Hill before becoming project leader in 1956. His new home will be in Garden City, Georgia.

Somewhere in your community...

Hugh Bennett Ponds

SOMEWHERE within a few minutes of your home is a well-managed farm pond designated as a "Hugh Bennett Pond." Good bass and bluegill fishing is waiting for you there right now; at the same time you enjoy this angling, you will be helping provide funds for a foundation that could mean better education in soils and soil conservation for the future of our state.

Hugh Bennett, who died in July 1960, was a native Tarheel who fathered the present Soil Conservation Service and did more for the saving of our soils than any other man in history. He knew the value of our soils and how they are interrelated with good wildlife production. His life was devoted to developing far-reaching plans for keeping our soils on the land where they belong. Almost single-handed he fought for a nationwide awakening to the serious misuse of the soil.

In his memory and to further the aims which he began, the Hugh Bennett Foundation was established. The idea of such a fund was first conceived by friends and neighbors of Dr. Bennett from Anson County and the Brown Creek Soil Conservation District, the oldest soil conservation district in America, organized August 4, 1937.

This project is being sponsored jointly by the North Carolina Association of Soil Conservation Districts and the North Carolina Chapter of the Soil Conservation Society of America. Its goal is the establishment of a fund to supplement the salary of a top-notch professor of soils at North Carolina State College.

At present, the salary level of such a position at North Carolina State is several thousand dollars less than comparable positions at some other leading colleges and universities. In short, North Carolina has lost some good men in the field of soils to better paying jobs elsewhere.

A minimum of $50,000 is desired and $100,000 will more adequately do the job. From this invested amount will come the annual, perpetual salary supplement of two to four thousand dollars.

One way in which the funds necessary for operation of this foundation can be raised is through the Hugh Bennett Ponds. Here's the way it works:

Ponds have been selected throughout the state and posted as Hugh Bennett Ponds. A charge of one dollar per day is being made to fish in any one of these ponds. All of these funds go into the foundation, earmarked for the salary supplement. Fishing contests have been organized on a county level by many of the local committees now actively promoting this project, and prizes for the largest bass and sunfish (bluegills and redears) will be awarded.

The ponds selected have good fishing records and are managed for big fish. No other fishing will be allowed in these ponds during the "contest period," May 8 through June 10. This is a chance to fish in your county's "hotspots" and at the same time help North Carolina retain her top soils men. Watch your local newspapers for further information and check with the Soil Conservation Service man nearest you for pond locations, contest rules and the daily, one-dollar permits.—**Duane Raver.**

A frequent companion of the accident-destined skipper is an insidious character named Complacency. He will ride with just about anyone who will let him aboard, and often is almost a stowaway in his stealthy approach. Surprisingly, the experienced boatman is perhaps less likely to recognize complacency than is the novice.

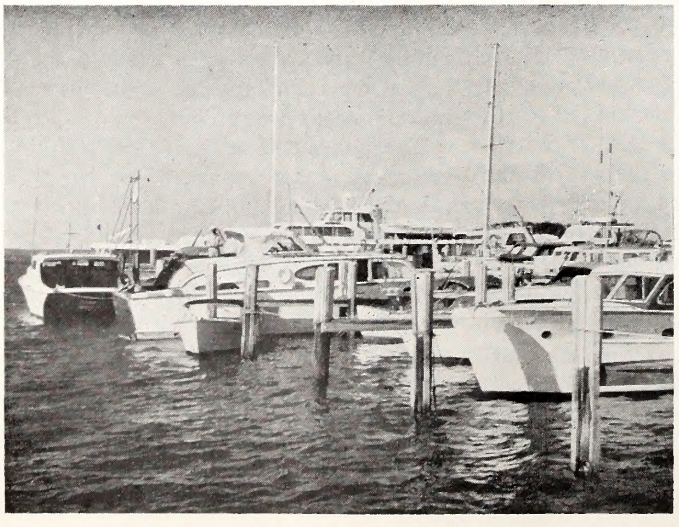
The key to dealing with this problem of "it can't happen to me" attitude is first of all the recognition that none of us is exempt from difficulties afloat. Now at first glance this doesn't seem like much of a problem; but this very fact of either ignoring or hiding from our minds the possibility of accidents makes it doubly difficult to deal with.

The two obvious approaches to boating accidents are, one, the prevention of such mishaps, and two, preparedness for dealing with accidents if they do occur. If the first, "prevention" were completely effective, there would be no need for the second, "cure." At our present stage, both must be emphasized for best results. The ousting of complacency from your boat is a good starting place for boating accident prevention.

No one likes to be saddled with an extra load of do's and don't's while having fun. But it is your responsibility as skipper to bring your passengers home safely, and this takes constant alertness on your part. Prepare for what can't possibly happen, and you will help keep trouble away.

Whether your boat is a 40-foot yacht or an 8-foot rowboat do not let complacency climb aboard. Always be an alert skipper.

Photo by Jim Lee



Motion Picture

Outboard motor and boat manufacturers, safety organizations, governmental agencies, and others have long recognized the effectiveness of movies in the boating safety education field. The Outboard Club of America has recently produced a timely motion picture dealing with the problem of surface water use. Entitled "Suddenly Upon the Waters," it points out the various uses of our crowded waters by swimmers, skiers, fishermen and sailboaters as well as pleasure boaters.

Photo by Rod Amundson

It is the right of everyone to enjoy our waters. Don't mar the fun afloat of sailboater or angler by reckless operation.

It makes for interesting and educational watching. Organized groups can obtain a print of this movie for public showings by writing the Modern Talking Film Library, 501 North College Street, Charlotte 6, North Carolina, the local OBC distributor.

Water Sportsman

It seems that we are almost constantly searching for rules to do things by. In this pursuit it soon becomes apparent that there are many situations that simply can't be handled by a set of rules. A plaque over the desk of a magazine editor puts it this way: "Rules are For When Brains Run Out." This may be a little harsh and shouldn't send you

Photo by Jack Dermid

Sportsmanship extends to boating too. Are you a water cowboy, or do you always consider the safety and property of others?

scurrying to discard useful rules. But the fact remains that there is no substitute for sharp thinking in tight situations.

For example, if you forgot all the boating safety rules now on hand and stuck to one capsule recommendation, it might be this: be a water sportsman. The more you think about this and all its implications the more effective it becomes. Are you a water sportsman . . . all the time?

What Do I Do Now?

What would you do if your outboard motor suddenly burst into flames while you were out a mile or so from the nearest shore? Even if you were thoughtful enough to have an effective fire extinguisher aboard, would you know how to use it properly? While flaming gasoline is spilling out onto the floor of your boat is no time to read the directions (if there are any to read).

The point is that all emergency equipment and procedures should be thoroughly checked out in advance of any boat trip. It may seem like a routine thing to use a fire extinguisher, but actually various *types* of fires call for quite specific procedures. Make sure that you and all your passengers know where the safety equipment is kept and exactly how it is to be used in an emergency.

Drownings have occurred when the victims were within arm's length of a life saving device. In a case or two life jackets or buoyant cushions were locked in a compartment when the craft capsized or swamped. One situation found the life saving device floating beneath the over-turned boat.

Even where no approved life saving devices were aboard, boaters have gone down thrashing wildly with some sort of a floatation object bobbing nearby. A minnow bucket, paddle, partially filled gas can, thermos jug, any of these will keep you afloat for hours.

Your greatest help in cases of emergency is confidence that you can handle the situation. Your greatest enemy when trouble starts is panic and wondering "what do I do now?"

Motor Maintenance Afloat

It's one thing to take the old kicker apart on the garage work bench but quite another to make repairs at sea. Your life and the lives of your passengers may depend on the motor. Fortunately most outboards nowadays are much more dependable than in past years. Yet, breakdowns will happen.

Be thoroughly familiar with the motor and its internal anatomy. Know what can go wrong and how to fix it. Have the tools and parts to repair at least minor troubles. Dry land practice on replacing a shear pin or sparkplug will pay off.

Speed Equals Danger

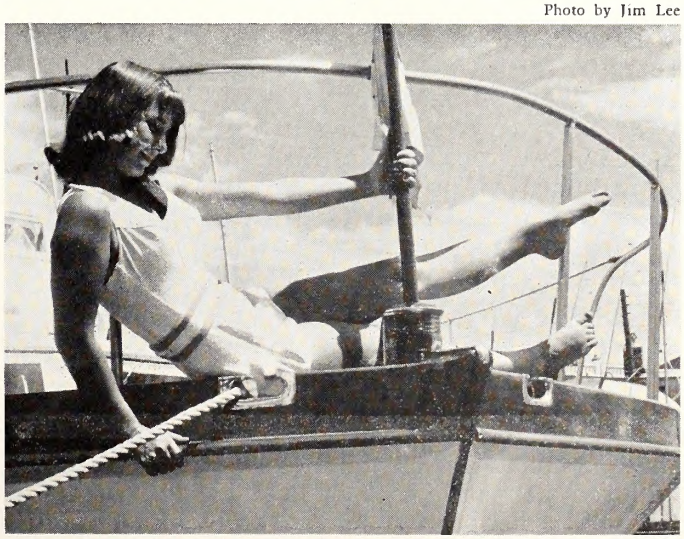
Although the horsepower race in outboards is apparently about over, more boats are now equipped with power plants of 40 horsepower and above than ever before. To condemn speed as a killer on the water is only partially justified. Because even with the increase in motor size, boating accident rates have remained steady and in some areas decreased slightly. Speed can be very dangerous, however.

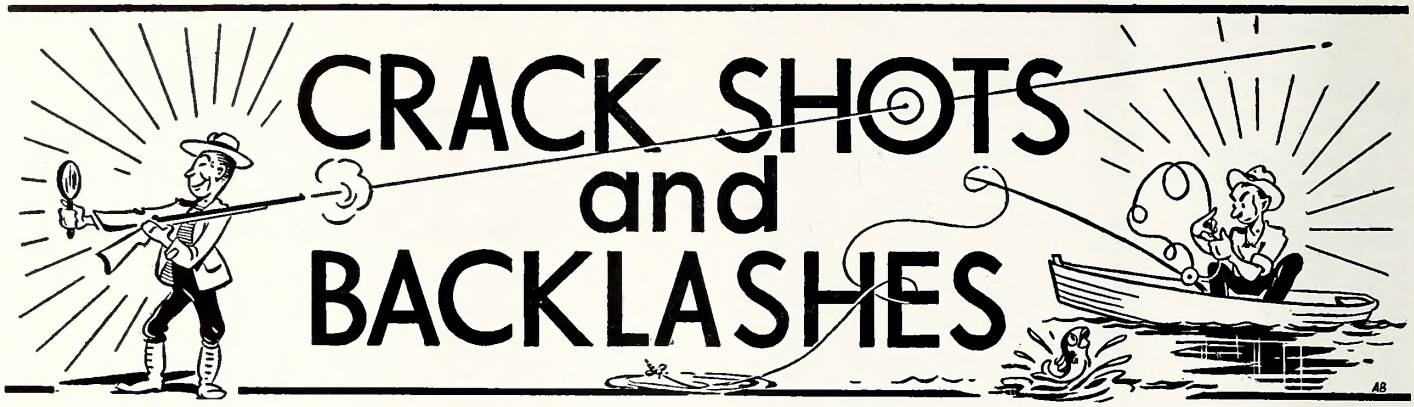
Boats have no brakes. This is one of the first facts the beginning skipper learns. And for some reason, many forget it just as quickly. Perhaps the feeling of the wide open spaces on the water lulls us into complacency and carelessness. Having the key to 30 or 40 miles per hour in the palm of our hand adds to the problem too.

Night operations are potentially dangerous also. Even when you're in a properly lighted craft, slow down when visibility is limited by darkness.

In case you haven't noticed, there is a bowlight in this photograph. Keep your craft's lights in perfect working condition.

Photo by Jim Lee





DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

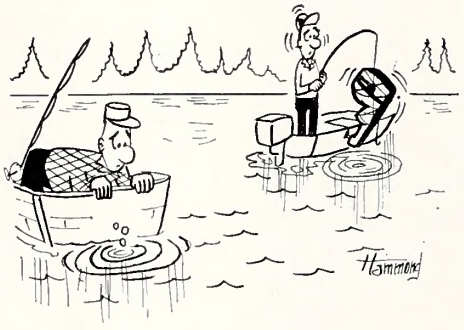
A Moment of Thought

The bow of your new run-about is cutting the mirror-like surface of the great mountain lake as you cruise on your first day of summer vacation. The Mrs. is sitting quietly on your left adjusting her kerchief and sunglasses while the two children sit backward on the rear seats watching the effervescent wake as the new run-about glides toward that hidden cove. Suddenly, out of nowhere, directly in your path lays a submerged log! It's too late. The sound of splitting wood, rolling gas tanks, falling paddles and skis pierces the morning air. Instantly you are wet! Where are the children and the Mrs? Your right arm is aching and you can't seem to push it forward to grasp the protruding bow. You reach for it with the left and get a firm grip pulling your body toward the floating hull. As you look across the bow you peer into the shining, excited eyes of the children and see the Mrs. bobbing alongside a gas tank and a ski.

The reason the Mrs. bobs out there by the tank and ski and the reason those shining, excited eyes peer back at you when you anxiously look across the hull is your ounce of prevention taken when you told the family to put life preservers on back at the launching ramp.

Had this happened in 1958 when your family vacationed here, those eyes would not be shining back. That was before you bought your new boat. At that time you used that old cushion from the discarded love seat for the back seats and for safety you threw in the old inner tube from the luggage trailer. While up front you always kept two ski belts ready at hand.

Fortunately for you, this is 1961. In early 1959 you read something in the paper about a boating safety law that affected the entire state. Until then you figured this was something for boaters on the "salt water." Next time you were in the sports shop you again remembered this "State Boating Law" and bought a couple of boat cushions.



When you applied for your certificate of number, you also received a booklet, *The Boat Owners Guide*. By this time you realized there was something to boating safety and read the booklet. Upon checking your two seat cushions you found they were worn and oil soaked. Back to the sports shop and this time you looked a little closer at the cushions and preservers and decided to get a preserver for each occupant and a few cushions extra.

On this quiet summer morning in 1961, you had gone a step further. Since you had to have a cushion or a preserver aboard for each occupant and you had both, you had the family wear the preservers while traveling from the launching ramp to the picnic and ski area.

All this flashes through your mind and then you relax as you hear an approaching motorboat. First the children, then the Mrs. and yourself climb aboard the assisting craft. A short trip to shore and the ordeal is over.

This imaginary adventure has happened in North Carolina in the mountain lakes, the Piedmont reservoirs and the coastal rivers and sounds. The cause has been a submerged log, a protruding rock or a sudden swell. Lives have been saved throughout North Carolina; all because of a bill introduced and passed in the North Carolina General Assembly. The purpose, as it is written in the bill states: "It is the policy of the State to promote safety for persons and property in and connected with the use, operation and equipment of vessels, and to promote uniformity of laws relating thereto." This bill caused many boaters to stop and think. That moment of thought followed by action allowed those shining, excited eyes to peer back that warm morning on the mirrored lake — *John Kennedy, Pender County wildlife protector, Burgaw.*

Save the Bluebirds

DEAR SIRS: A friend who is fond of birds, and feeds and builds birdhouses for them on his property, was in our office the other day. He asked if we knew what has happened to the bluebirds. We had not given it much thought, so told him that we did not know why but for some reason we had not seen many bluebirds recently. His answer was that the bluebirds and wrens are getting into tobacco, and potato house flues, and being unable to get out are falling down into the furnace which is usually also closed, where they starve to death. The bluebirds and wrens get into the flues because they are looking for a place to build their nest or to roost. They are in competition with the starling and English sparrow, and therefore have a hard time finding suitable nesting places.

The bluebird and wren are two of our best wildlife friends, because they both live on insects and worms, and thus help to keep the insect population down. Their songs and calls are something we all like to hear, especially in the spring of the year.

There are two ways by which we can help to prevent the bluebirds and wrens from destroying themselves. One is to put a screen of not less than one-half inch mesh wire over the flue tops, or if this is not possible just leave the furnace doors open in the barns, and potato curing houses, and then leave a small hole so that the birds can get out of the barns. This will prevent the birds from destroying themselves, and we will all benefit. E. N. PEARCE, SR., PAST PRESIDENT ALAMANCE COUNTY WILDLIFE CLUB, BURLINGTON.

Foxes

DEAR SIRS: I am enclosing $1.00 for renewing my Wildlife Magazine. I would like for you to try to change the fox hunting season to September and the last of February and March. Squirrel season is a bad time for fox hunters to be hunting with dogs, and also is bad in the trapping season when trappers are using traps to trap.

I would appreciate your looking into this matter and let me know what to do. Please start my subscription at the next issue, and if my question is answered please print it in the next issue. HARRY K. TEACHEY, WALLACE.

This is a hard question to answer. Many counties have local fox hunting laws, and seasons are established by the Wildlife Resources Commission. You might wish to bring your question before the public hearing scheduled for your district. See *Resource-O-Gram* for the date.

Another milestone was marked in the growth of the North Carolina Wildlife Federation last February with the affiliation of the newly organized Burke County Wildlife Club. Shown at the ceremony are (left to right): James A. Connelly of Morganton, District 8 Wildlife Commissioner; Turner W. Battle, Rocky Mount, executive director of the Wildlife Federation; and Dan Cameron of Morganton, club president. The rapidly growing Burke club has more than 200 members.

These seven greater snow geese were a long way from their normal wintering grounds in the Back Bay-Currituck Sound-Pea Island area when they appeared on the pond of David Dunn, Jr., near Maxton last January and remained for several weeks. They were photographed by Penn Gray, The Robesonian, Lumberton.

Purple Martins

DEAR SIRS: I would like to get information on the martins, where they go in winter, etc. Have some nice boxes up for them, and had 15 pairs last summer, and am looking for more this year.

They came on March 18 last year, and I hope they are here sooner this year. ERNEST TILLEY, KERNERSVILLE.

DEAR MR. TILLEY: Many people enjoy having a colony of purple martins around their home, and I hope your colony will return the middle of March.

The purple martin spends the winter in Brazil. This bird is believed to have been originally a bird of the tropics, which because of its fecundity and great powers of flight has become disseminated widely through the North Temperate Zone. Evidently it is a tender species which cannot withstand cold and wet, as long-continued, cold rain-storms have been known to nearly extirpate it from many areas. WILLIAM L. HAMNETT, WILDLIFE EDUCATION REPRESENTATIVE.

Lucretia Again

DEAR SIRS: I have just returned home from a visit with my son, who is a colonel in the Army at Fort Bragg, and his four sons. They always enjoy looking

Wildlife PRODUCES for NORTH CAROLINA

Wildlife PRODUCES for NORTH CAROLINA

PROTECTOR OF THE MONTH

Jimmie J. Wheless

Jimmie J. Wheless was born in Guilford County on January 11, 1932, and graduated from Oakhurst High School in Charlotte in 1949, after which he attended Brevard College and Charlotte College. A Mason and member of the Scottish Rite, he is also an instructor in the first aid, boating, and hunter safety courses taught to Protection Division personnel at the Institute of Government. He has completed the school in survival swimming, and has attended four Wildlife Protectors' training schools at the Institute of Government in Chapel Hill.

Jim was employed by the Wildlife Resources Commission on October 1, 1953 as the Davidson County Wildlife Protector. On February 1, 1958, he was promoted to the position of Wildlife Patrolman. He is married to the former Patsy Helms of Charlotte, and they have three children. The Wheless' reside at 112 Oak Avenue in Lexington.

ENFORCEMENT RECORD FOR FEBRUARY

HUNTING & FISHING:	
Persons checked	9,907
Total prosecutions	269
Total convictions	249
Total cases not guilty	12
Total cases nol prossed	8
Total fines collected	$2,904.00
Total costs collected	$2,008.20
BOATING:	
Boats checked	49
Total prosecutions	5
Total convictions	5
Total cases not guilty	0
Total cases nol prossed	0
Total fines collected	$ 15.00
Total costs collected	$ 39.00

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

at Wildlife Magazine. One of the boys who is eight, Master Donald Brown, asked me this question about the quail picture on the back cover of the June issue: Which are mamas and which are papas? Frankly, I couldn't answer him but took this stab at it. I told him I thought there were three papas and two mamas. Ask Lucretia whether I was right or wrong.

We all enjoy hearing what Lucretia has to say.

These boys want to know why elephants hold each other's tails with their trunks when leading them around. Lucretia will know, I am sure. R. L. BROWN, CHARLOTTE.

The "mama" quail is the one with the buff markings on the throat. We asked Lucretia about the elephants, and she said that this is a matter that concerns only the elephants.—Ed.

Budding Young Scientist

DEAR SIRS: I am a seventh grade student at Old Town School in Forsyth County, and wish to enter an exhibit in a science fair which will be held this spring.

I understand that gibberellic acid will stimulate the growth of plants and I plan to exhibit plants treated with the acid.

Please advise me the proper amounts of acid to apply to plants and the plants which will give the best result. Also, tell me the effect, if any, of feeding gibberellic acid to fish. BOBBY WILSON, WINSTON-SALEM.

DEAR BOBBY: To help you with your science fair exhibit, we are glad to pass on to you what little knowledge we have relative to gibberellic acid as a growth stimulant for plants.

Gibberellic acid is a plant regulating chemical, which at present, is supplied in pure form as a white powder not very soluble in water. The acid is produced by a fungus grown in a liquid culture medium from which the acid is extracted—a method similar to that used in producing antibiotics.

One way of getting the acid on the plant is by spraying. Dissolve 1 gram of gibberellic acid in 4 or 5 milliliters of 95 percent ethyl alcohol. Add to this 40-50 drops of liquid soap detergent. Then add this mixture slowly to 1 quart of water. stir vigorously. This will give a concentrated solution, diluted by adding a portion to another quart of water-detergent mixture.

Another way of applying gibberellic acid is to make a paste. A one percent paste is made by adding 7 drops of detergent to 12.5 milligrams of acid, and warm gently. After acid has dissolved add 1 gram of melted lanolin and stir until a creamy paste is formed.

Generally, plants respond most rapidly when vegetative buds are growing but the stem elongation from them is not appreciable. Dry seeds and resting bulbs, corms, and roots have not proved very responsive.

Plants you may experiment with are beans, cabbage, petunia, loblolly pine, and poinsettia.

There is no indication that feeding gibberellic acid to fish will materially affect them in any way. But since you are a budding scientist why not try a few control experiments and see? WILLIAM L. HAMNETT, WILDLIFE EDUCATION REPRESENTATIVE.

Questions on Quail

DEAR SIRS: Here at the barber shop we have some pretty stiff arguments on game sometimes; could you set us straight on a few things about quail? Do quail mate for life, or do they have separate mates year after year? Also, I read in one of your magazines where hunting quail doesn't hurt the population as much as people think. Please set us straight on these two issues. STEWART WATTS, TABOR CITY.

Specifically, quail mate only for one breeding season. With an average life span of only one year, this might be considered a lifetime proposition. Geese and some other long lived birds mate for life. Research has shown that if twenty percent of the quail population is carried over to the spring and summer breeding season enough birds remain to bring forth another crop. Harvesting quail, through hunting, takes birds that would otherwise succumb to normal fall and winter mortality. Reasonable hunting does not hurt a quail population.

Films and Filmstrips

Teachers seeking reference materials should find "A Critical Index of Films and Filmstrips in Conservation" a helpful publication. the Wildlife Management Institute reports. Compiled and

Wildlife PRODUCES for NORTH CAROLINA

Wildlife PRODUCES for NORTH CAROLINA

Winners of the Pleasant Garden Club sunflower contest were (left to right): James Coble, Judy Taylor, Tommy Callicutt (first place, large variety), Karon Weatherly (first place, small variety), and Vivian Fields. Seeds were fed to birds.

SUNFLOWERS HELP TEACH CONSERVATION

Last spring, the Pleasant Garden Club of Pleasant Garden sponsored a sunflower growing contest in the local grade school.

Mrs. W. B. Kearns and Mrs. B. W. Kirkman of the garden club's bird committee worked with teachers in distributing sunflower seeds to all interested pupils. Interest in the competition was great and many youngsters eagerly prepared a plot in their yards and planted seeds.

When school resumed in the fall, each successful young gardener brought his largest sunflower head to school for entry into the contest. The results were amazing. There were 69 entries, all of them fine examples of sunflowers. The largest, belonging to Tommy Callicutt, measured 21 inches in diameter and was cut from a stalk about 12 feet high.

The value of the sunflower contest did not end with the judging. The seeds were placed on feeding stations for the birds. The youngsters really profited from their sunflower growing experience. They learned how to till the soil and about the germination of seeds. They watched new sprouts push through the soil, tower upward to flower and produce seeds. They learned about birds. Here is a conservation project worth repeating in every school in the state, a project that will surely give any child a better appreciation of the world around him.

---

edited by the Audio-Visual Department of The Conservation Foundation, the index deals with renewal and nonrenewal resources, and with new and to-be-developed resources.

Part I includes a description of each of the films and filmstrips that the department has found to maintain a high standard of production, ingenuity of presentation and concept. Part II consists of selected films that three teachers have found useful in their work.

Copies of the booklet may be obtained without charge from the Foundation, at 30 East 40th Street, New York 16, New York. The supply is limited.

Wildlife Conservation

This week we received our copy of "Progress In Wildlife Conservation," a one-hundred page booklet which comprises the seventh biennial report of the North Carolina Wildlife Resources Commission.

We have skimmed through the publication hurriedly and plan to give it a more complete study later, but the most important thing it has done for us thus far is to set us to thinking.

There are more hunters and more game is being taken each season than at any time in the past. Still there will be more for next year, and for ten years from now.

This is no accident, and the fact this situation exists is a tribute to the objectives of the North Carolina Wildlife Resources Commission and the manner in which they have been carried out. Left to his own devices, man will fish or hunt himself out of business. That is where the program of controlled hunting and fishing and of game management comes into the picture.

Too often we think of a Wildlife Protector as merely a game warden with a fancy name and a gaudy uniform, charging us more than we like to pay for our hunting and fishing license and slinking about the woods and streams trying to catch us in some violation of game regulations.

Well, the game protectors we have known were pretty good men before they entered upon their work, and they are pretty good men now. If they were not, they would not still be on duty, for their's is a job of work. The word protection implies more than the enforcement of the game laws.

Among the many natural blessings of life in North Carolina is a balanced hunting and fishing program, and we feel that all of us are better off to pursue our favorite sport within the bounds of certain seasons and reasonable regulations than we would be to see these natural resources wiped out by game hogs who would ruin it for us all—*Whiteville News Reporter.*

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ten cents

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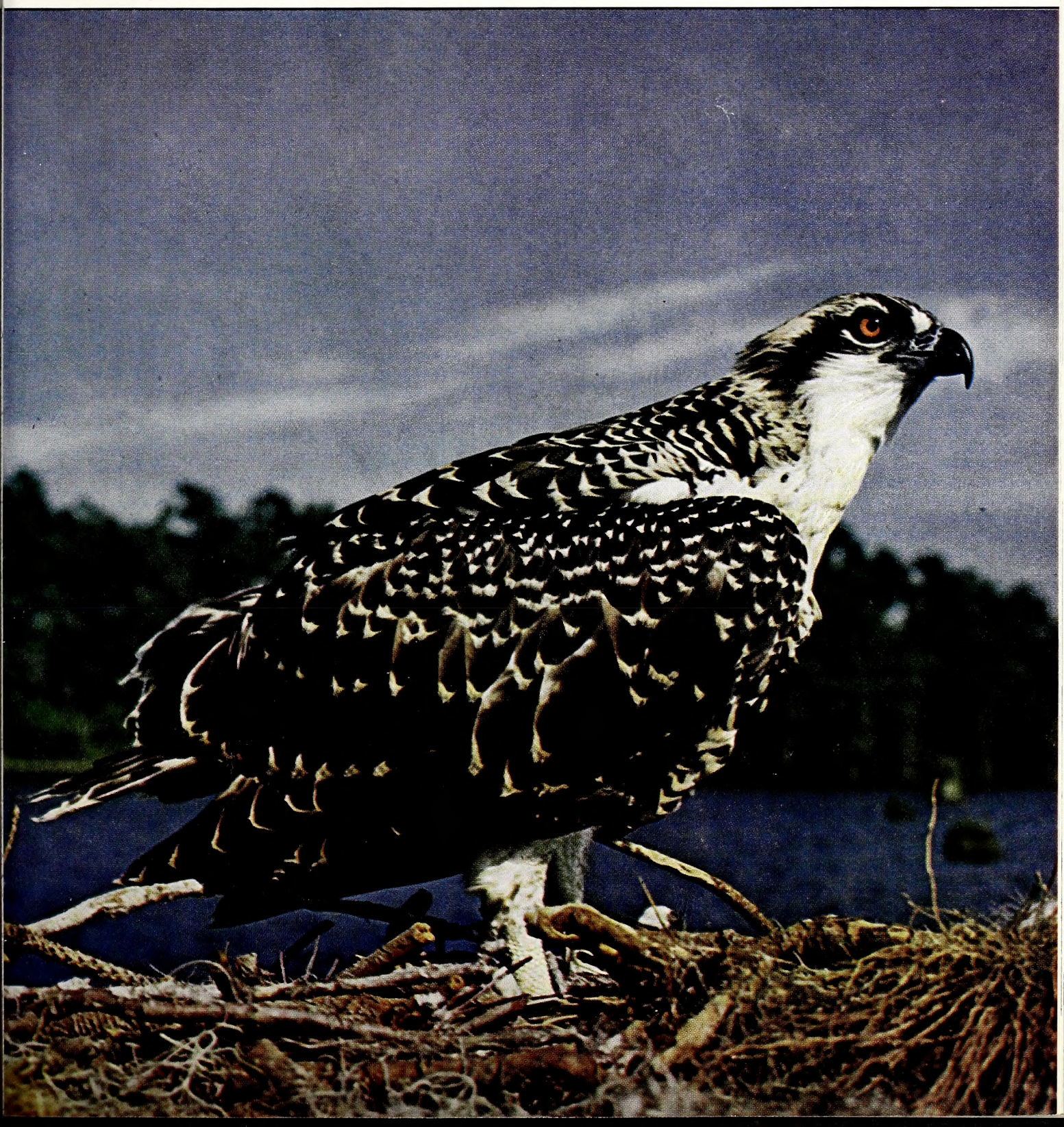

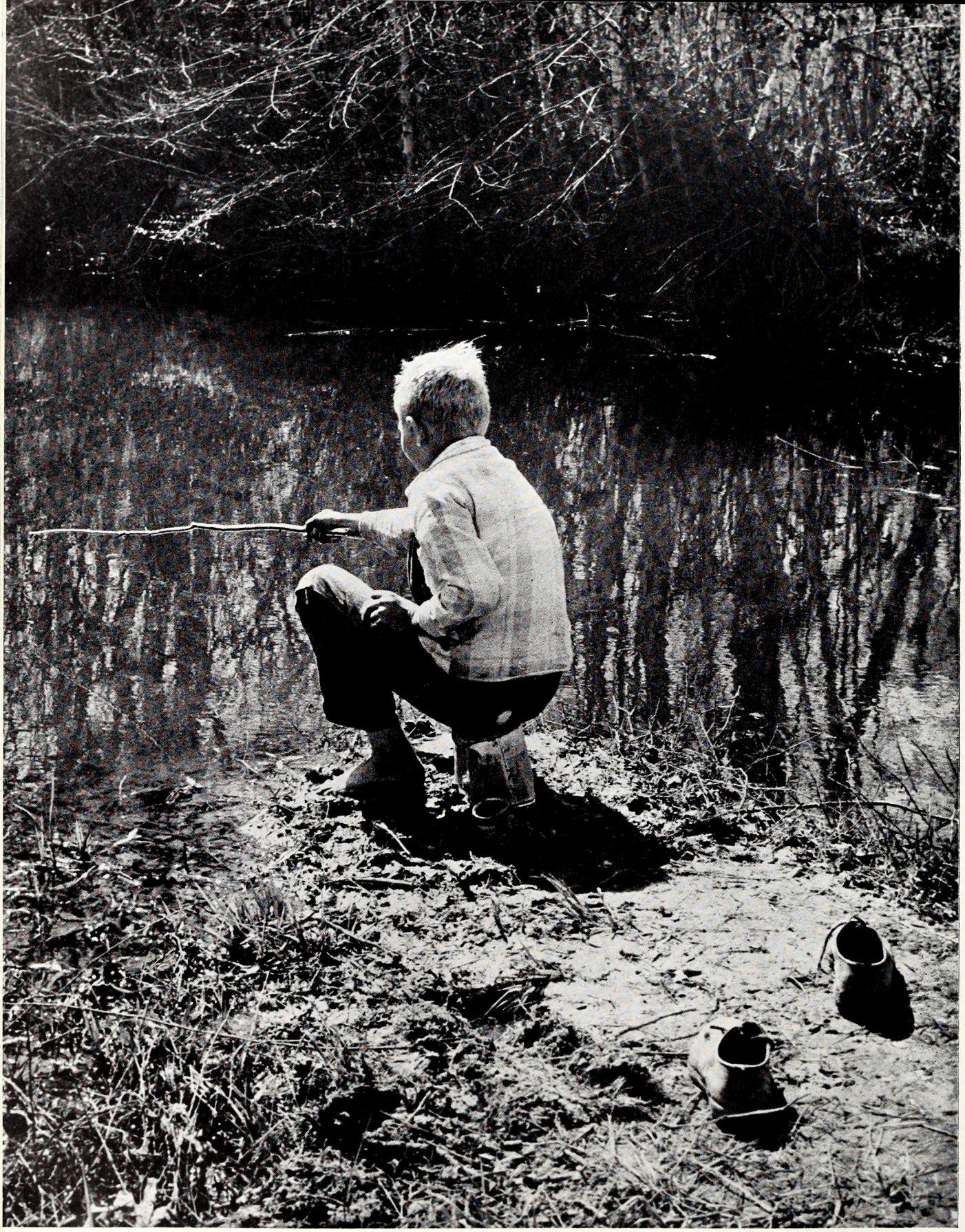

Jack Dermid

Remember When . . .

. . . you were young and the creek behind the back pasture seemed as big and exciting as Tom Sawyer's Mississippi? Remember the feel of soft, cool mud between your toes, the perfume of honeysuckle borne on June breezes, the glistening wings of "snake doctors" darting by? Remember the battles with creek-size sunfish—whoppers in any boy's mind? Ah, those were the days!

State of North Carolina

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Governor

North Carolina
Wildlife Resources Commission

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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

The proud youngster on our June cover has reason to be proud. His days in the nest are about over, and he will soon soar through the air on mighty wings—a grownup osprey.

His nest, a bulky affair of dead limbs and Spanish moss, tops a stump in Orton Pond, where the combination of protection and nearby coastal feeding areas has created a Mecca for the species. There are several dozen active nests on the pond every year, and many of them can be seen from the road across the dam. Orton Pond is a part of beautiful Orton Plantation near Wilmington. Color photo by Jack Dermid. For more facts about the osprey, turn to our back cover by artist Duane Raver.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Lonnie Broome

North Carolina's Boating Accidents

by Jim Lee

What causes boating accidents? Who is involved? And how can further accidents be prevented? Some of the answers can be found in this important study of the accidents reported during the first year of North Carolina's new motorboat safety law.

THE crowd stood silently as the boat approached the dock carrying two grim-faced passengers and a shrouded bundle between the seats. Catching the line tossed by the man in the bow, one of the spectators asked in a low tone, "Did you find him near the skiff?" The man in the boat nodded.

Similar scenes were repeated many times last year, as North Carolinians added nearly forty small boat fatalities to the records. In 1960, for the first time, fairly complete records were kept on all boating accidents. Thus we can say with some certainty what causes these tragedies.

Until 1960, only fatal accidents appeared in official records and then the circumstances were often obscured. Under the North Carolina Boating Safety Act of 1959, reports must be made in every boating accident involving death, injury, or property damage of more than $100. With the reports from 1960—the first year of operation for North Carolina's law—a pattern emerges that deserves the careful study of every person who uses the water for sport or for business.

Some weaknesses in the 1959 act were underscored by the high rate of fatalities in a class of boats omitted from most of the safety regulations. And another class of water users, often soundly condemned by their brethren on the water, appears far safer than originally thought.

A New Image of the Reckless

Who needed the boating safety act? A mental picture was formed by many concerned with the increasing toll of boating accidents—featuring a reckless teenager, who buzzes across an inland lake pulling one or two grinning water skiers behind a sleek runabout powered by 70 horses or more. His accident was predicted to be spectacular, either a collision with another of his own kind or with a helpless swimmer.

Based on the results of the 1960 season, another image emerges. The fatality is most likely a fisherman who drowns when his 14-foot boat capsizes in a river. His craft is apt to be wooden, powered by a 7½-horsepower outboard. He isn't a teenager, but rather a not always sober adult between the ages of 25 and 54. His experience on the water varies, but most operators involved had more than 100 hours of boating.

Fact Instead of Opinion

Until 1960's reports began coming in everyone had to content himself with opinion instead of fact. There simply wasn't enough reliable information on Tarheel boating accidents to plan a boating safety program to answer every need.

The 1959 North Carolina act requires that operators report accidents to the Wildlife Commission. Information in this article was taken from these reports, as submitted by boat operators and, in some cases, by wildlife protectors.

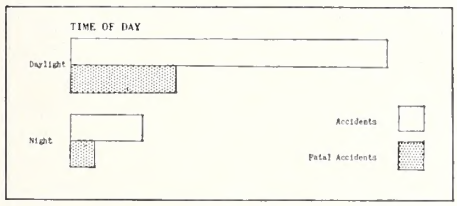
In some respects the results of the 1960 season upset preconceived opinions. If nothing else, an analysis of 37 fatalities and nearly 80 accidents on Tarheel waters should prove the worth of the reporting system—but of far more value should be the courses of action indicated by the figures themselves.

When They Happened

The rate of boating accidents in 1960 followed a fairly even pattern, starting slowly in January and increasing to a peak in July. An abrupt drop in accidents came in August, accompanied by prolonged rains that drove most boaters from the water. The rate evened out during the fall, with the last accident coming on December 30.

Fatalities presented a somewhat similar picture, but with a less marked peak in July. While the all-accident rate varied from no accidents (January and March) to 25 accidents (July), the fatal accident rate reached a high of seven in July but four deaths were recorded in December. The reason for the smaller variation in the monthly rate of deaths is probably the fisherman. While pleasure boaters—who accounted for most July accidents—remain off the water during cold months, nothing seems to stop the fisherman.

The first boating fatality recorded last year and the last fatalities were all fishermen. The first was a commercial fisherman who set out in a sleet storm to tend his nets; he died of exposure when the motor was caught in nets and the boat disabled. The last fatal accident was a multiple affair; four fishermen died when their boat capsized on a December fishing trip off Oregon Inlet.

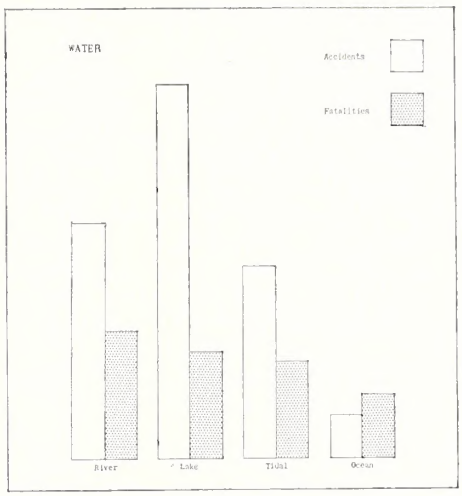


The time of day contributed to some accidents, but the severity of the result didn't seem to vary, whether day or night. A fourth of the daylight accidents resulted in fatalities and a fourth of the night accidents also had fatal results.

Where They Occurred

North Carolina's vast system of lakes, ponds and reservoirs was host to 44% of the boating accidents in 1960. Rivers followed with 28%, and tidal waters accounted for 23%. Four accidents occurred in the ocean.

A different story appears when one compares the fatalities with the type of water. More than half the river accidents resulted in fatalities; the fisherman in the small boat is the factor here. Less than a third of the accidents in lakes resulted in death, while half of those in tidal waters caused loss of life. The scant number of accidents in the ocean—four reported—took a relatively heavy toll with six fatalities.



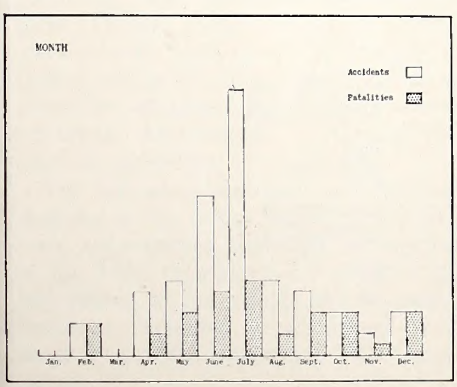
The Craft Involved

A pattern emerges from the study of boats involved in accidents that could have been predicted from a knowledge of the types of boats in use. However, the fatal accidents present another picture entirely.

Leading the list in length class are boats of 14 and 15 feet. This category includes the popular runabout and many of the fishing skiffs. Only two accidents involved boats of less than 12 feet, and seven were in the 12-13 foot class.

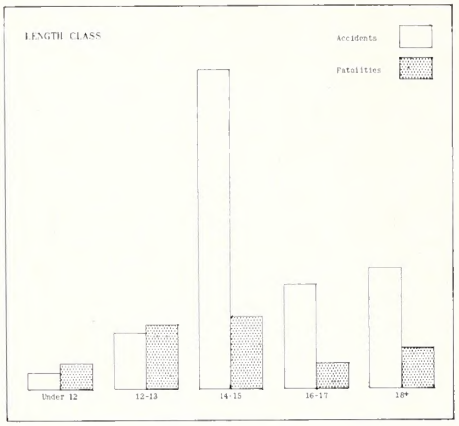
Larger boats also entered the picture, with 17 accidents in the 16-17 foot class and 19 involving boats 18 feet long and over.

Because many of the accidents involving small boats led to drownings, the significance of small boats in the fatality picture is quite impressive. Boats under



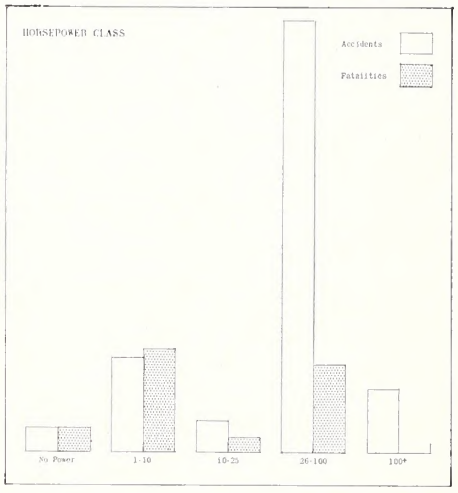
Capsizing was the leading cause of fatal accidents in 1960, with the small boat powered by 10 horsepower or less figuring in a large percentage of the fatalities. Life preservers would probably have saved many of victims who died in such cases.

Jim Lee



14 feet accounted for only 12% of the accidents, but contributed a striking 39% to the death toll. The middle class, 14-15 feet, had 52% of the accidents but only 32% of the deaths.

Horsepower presents a similar picture, with the smaller boats leading the list. Although boats powered by 10 horsepower or less were not required to register in 1960 more than half the fatalities —55% of the total—came in this category. Boats with either no power or powered with 10 horsepower or less accounted for 15 accidents with a total of 16 fatalities.



Faster boats led the list of accidents, with 66% in the 26-100 horsepower category—yet there were only 11 fatalities. Boats with more than 100 horsepower accounted for 8 accidents, but no lives were lost.

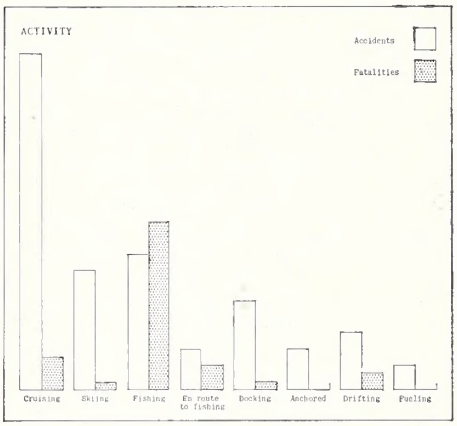
No particular type of boat can be labeled safer or more dangerous by virtue of its place in the accident toll—construction of the boats involved in accidents seems to be largely a function of how many boats of the type are in use.

Wooden boats led in the accident list with 70% of the craft, while open construction accounted for 90%. Outboards led in popularity with 90%. Inboard gas-fueled boats accounted for the remaining 10%, with no inboard diesels appearing in the 1960 rate.

What They Were Doing

The popular sport of simply cruising led the list of activities at the time of the accident. This accounted for 40% of the accidents. Far behind were water skiers with 14%, and fishermen with 16%. Listed separately are water travelers en route to fishing; these accounted for 5%.

Docking or leaving the dock seems to be a hazardous time, since 10% of all accidents occurred during one of these maneuvers. The anchored boat showed up in 5% of the accidents, with drifting boats in 7%. Fueling was the activity in 3% of the cases.



Did the severity of the accidents follow the same pattern? Although the cruiser gets in more accidents than anyone else, he has to take a back seat to the fisherman in fatalities. The 42 accidents involving cruising caused a total of only four fatalities, while the fisherman suffered 21 deaths in 17 accidents. The fisherman led the list with 65% of the dead, with another 9% en route to fishing.

The water skier, who had 15 accidents in 1960, contributed only one fatality.

What Caused the Accident?

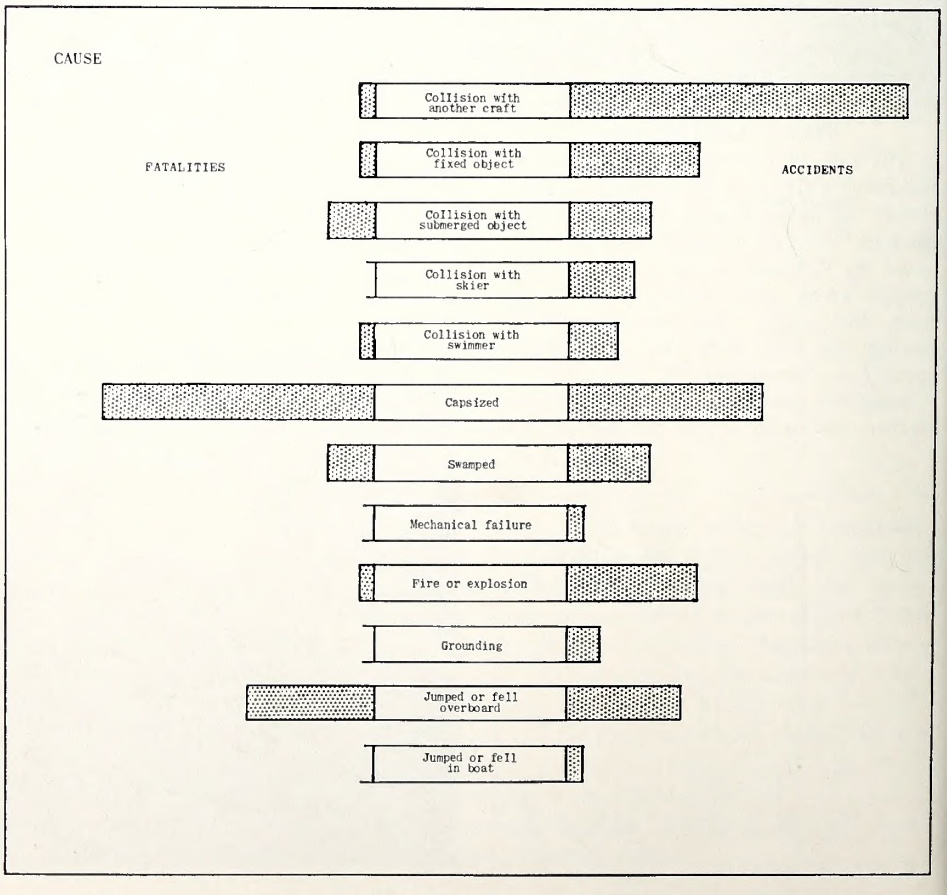
Collisions between two vessels was the leading cause of accidents during 1960, accounting for 28% of the total. Collisions with fixed objects, such as breakwaters and pilings, caused 10%. Collisions with submerged objects caused 6%. Collisions with people followed, with 5% involving skiers and 4% involving swimmers.

Far less spectacular was the accident involving only one boat and no collision. Capsizing caused 17%, while 6% swamped. Mechanical failure, a contributing element in several accidents, was the sole factor in only one. Fire and explosion caused 10%, while grounding accounted for 3%.

In 9% of the accidents the victim simply fell or jumped overboard. One other case was recorded when the victim fell within the boat.

What caused the fatalities? The spectacular, the collision between two vessels, left only one person dead. Leading cause of death was capsizing, contributing 17 victims for 48% of the total. The victim who fell or jumped overboard came next, with 8 fatalities providing 22% of the total.

One person died as result of a col-

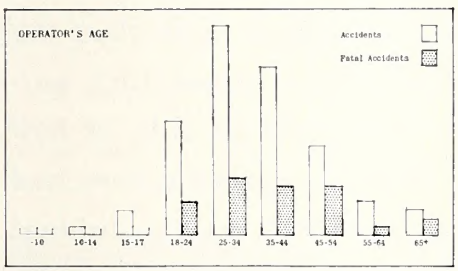


lision between a boat and a swimmer. No skiers were killed. Three persons died as a result of collision with submerged objects, and a like number died when their boat swamped. One died as a result of fire, and one died following a night collision with a breakwater.

The Man At the Wheel

The man most often involved in a boating accident is between the ages of 25 and 34. The 35-44 age group follows, with the 18-24 group next. Close behind comes the 45-54 age group, with the 55-64 group trailing. According to 1960 figures, the 15-17 year-olds matched those 65 and over with three accidents in each group.

Only one accident involved an operator under 15. Youths under the age of 18 figured in only 5% of the accidents, and none of these was fatal.



Women drivers may have their problems on the highways, but only three boat operators were female and one of these —a 15-year-old girl—was the victim of a hit-and-run male adult who hit her drifting boat and fled.

In all accidents, the operator with less than 20 hours of experience accounted for 8% of the accidents, while the old hand with more than 500 hours led with 39%. Only two operators involved in collisions had less than 20 hours experience. Six of the colliders had between 20 and 100 hours behind the wheel, and 13 claimed between 100 and 500 hours. The man with the most experience, more than 500 hours, led the list of colliders with 15, or 42% of the total involved in collisions with other vessels.

Conclusions from the Facts

The goal of the 1959 Boating Safety Act is the reduction of boating accidents. Tools to implement the act consist of education, administration, and enforcement. Certain factors stand out prominently in the analysis of 1960 accidents, factors which can be controlled to some extent by increased effort or emphasis in education, enforcement, or through additional legislation or regulation.

The following comments are the conclusions of the author, based on his personal observations following an analysis of the 1960 tabulations. A different interpretation of the results, and corrective measures suggested, could come from another person examining the same figures.

1. The fisherman is the man most likely to appear in the fatalities column. **Three of every four fatalities involved a fisherman.** Increased emphasis is needed in education, enforcement and regulation to reduce the toll among this group of water users. The following factors indicate the fisherman's significance in the death toll:

a. A steady rate of boating accidents resulting in deaths continued even during months when inclement weather discouraged the pleasure boater. The pleasure boater's accidents give a decided peak to the all-accident curve, but the fisherman holds the fatal accident rate in a steady line.

b. The fisherman in the small boat had more fatal accidents in rivers, despite the much higher proportion of all accidents occurring in lakes. The fisherman venturing offshore into the Atlantic accounted for all four accidents in the ocean, with a death toll of six.

c. The small boat—under 14 feet—showed more fatalities than accidents due to multiple drownings, while the longer boats far over-shadowed them in all accidents. The lower horsepower—10 horsepower and under—led in fatalities and surpassed all other horsepower categories combined.

2. Coupled with the fisherman's prominence in the fatalities is the high death toll among small boats. According to the Outboard Boating Club of America, there are only 7,500 motorboats in North Carolina powered by 10 horsepower or less, compared to 38,000 over 10 horsepower. **Yet the boats powered by 10 horsepower or less accounted for half the accidents.**

The all-accident rate is somewhat more in proportion, with two-thirds of the reported accidents occurring among boats over 10 horsepower. Unpowered boats contributed three fatalities, so that the entire class of smaller boats led the larger ones considerably in fatalities.

What Needs to be Done?

Now that we have established a more accurate picture of the man involved in boating accidents, there remains the problem of doing something to reduce the number of accidents, particularly those having fatal consequences.

This leads to a number of questions. The answers here are the personal opinions of the author, based on his interpretation of the facts.

Should all vessels be equipped with life preservers? The high death rate among smaller boats, especially the unpowered rowboat, leads to the conclusion that life preservers should be required on **all** vessels. In one accident involving an unpowered sailboat, the operator clung to a seat cushion for more than an hour in frigid water. Had he not had a buoyant cushion, he would have been a fatality. The cushion saved him, although he was almost unconscious when rescued. Extending the life preserver requirement to all vessels, regardless of size or power, should save more lives than any other single course of action.

Should all powered boats be registered? In order to bring the safety equipment requirements for smaller boats up to the standards of other craft, particular attention will be required on the part of law enforcement officers. And the educational efforts of the Wildlife Commission must be concentrated on the smaller boats which have the highest fatality rate. The operators of boats powered by 10 horse power and less, in receiving special attention in education and enforcement, must expect to bear the burden financially through registration and payment of the same fees as the larger boats.

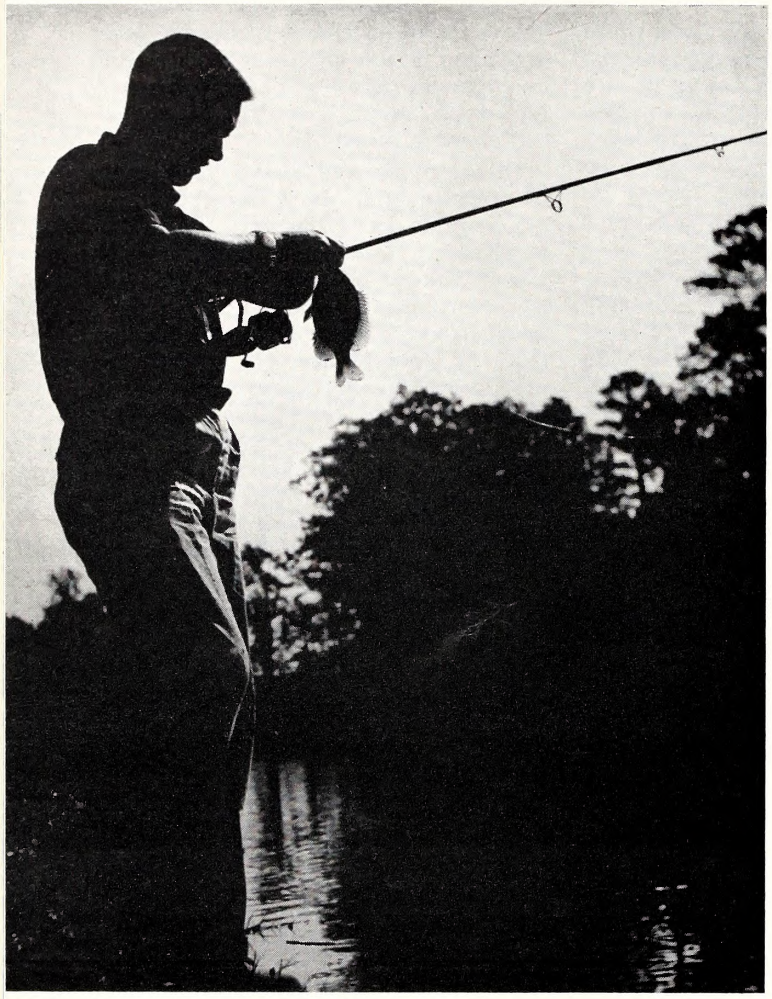
What about operators' licenses? Contrary to all expectations, the youthful operator—under 18 years of age—figured in only 5% of the accidents. None of these was fatal. Similarly, the hours of experience claimed by operators does not indicate the need for licensing based on skill gained from operation for a given number of hours. Leading the list of those involved in collisions were those claiming more than 500 hours of experience.

Are water skiers more dangerous than other boaters? Considering the wide sweep of water covered by water skiers and their towing boats, the skier contributed only a small part of the all accidents rate, with 15%. Of all the 37 fatalities, only one involved a skier.

Should waters be zoned for particular activities? Speed was a factor in only a handful of accidents, and the apparent conflict between various interests on the water is not reflected in the death toll. One collision between a boat and a swimmer resulted in death; in this instance the swimmer was in a boat launching area. Aside from collisions with people in the water, the only benefit from zoning or speed limits would be a reduction in the number of collisions with other craft. While collisions led in the all-accident rate, only one person died and this happend in a docking area with both boats at low speed.

The only way to eliminate **all** boating accidents is to eliminate all boating. Short of that, it will take the combined efforts of everyone on the water to make an appreciable dent in the toll. The law enforcement officer, the educator, and the legislator all have a hand in reducing the accident rate—but the man who can do the most good is the man who operates the boat.

North Carolina's waters provide room for the boating sports of thousands of Tarheels—but last year these luring waters claimed the lives of 37 people. Will the 1961 roll of tragedy include your name?



Jack Dermid

Backyard Bluegills

by Duane Raver

Few fish offer the fisherman more than the bluegill does. This little scrapper isn't particular where he lives, what he eats, or how he gets it. The bluegill smacks a lure and fights all the way. Come on, let's go fishing!

MAYBE you'll say that it doesn't take much to make some people happy, but give me a June day and a bunch of bluegills and I'm content . . . provided they'll bite! They don't always, you know, and perhaps that's what makes it so fascinating, this bream fishing.

One nice thing about them, they are handy. Outside of the cold, mountain trout streams, it's difficult to find a body of water in North Carolina that doesn't have its share and more of bluegills. As a matter of fact, many ponds and reservoirs have too many for the fish's own good. So finding where they live, be it farm pond or giant reservoir, won't take you far from your own backyard.

The bluegill has many friends and also a few dogged hecklers. Take for example two scenes, each with a fisherman and a bream pond. Each fisherman intently watches a gaily colored cork bobbing in the dark green water. Before long the bobbers dip, dip again and then dive out of sight. The battles generally aren't lengthy ones, and the fish are seldom over a half-pound. And although the mechanics of the episodes are similar, the comments that often follow the catches by the two different fishermen are vastly different.

The angler that had praise for his quarry was the gentleman with the lightest cane pole or even a fly rod on occasion. The disappointed fisherman, the one with only uncomplimentary barbs for the bluegill, sported a cane pole meant for tuna and a chalk line designed for tying up Doberman Pinschers.

Yet it was basically the same fish that each had flopping on the grassy bank. The difference then, without further belaboring the point, was the tackle. One outfit was rigged for bluegills or other small game fish; the other was, well, let's be kind and say simply "too heavy."

So, if bluegills are your dish, tackle them with light gear. Not only will you have more fishing fun, but chances are pretty good that your catch will be better.

Very likely the type of water which you fish will dictate the tackle to a large extent. For example, if the water selected is a small farm pond with areas of submerged vegetation and even a few patches of lily pads, a light cane pole or short fly rod would be much preferable to a lengthy stick in either category. Casts with the fly rod most likely will be fairly short and rather accurate for best results.

To stay on one track for a few minutes, let's look at fly tackle for bluegills. Gear designed specifically for this scrappy panfish, of course, simply isn't so designated and you may have to shop around a

bit and then settle for a compromise that is suitable.

Basically the rod should be no longer than 8½ feet and no shorter than 7 feet which narrows the choice rather rapidly. One possible shortcoming of this length rod is its limitations when it comes to casting the larger, heavier popping bugs. The partial solution is to select a rod that is a trifle on the stiff side. This won't hinder the bluegill's actions much and it will help the longer casts with bugs.

Team your "bream rod" with a suitable fly line, the best that you can afford. A shooting taper casts bugs better, but is more expensive. A good level line should do the trick, but make sure it floats.

Add a few light leaders, tapered or level, a couple dozen flies, and you're just about set to tackle some backyard bluegills.

The variety of the bluegill's menu is a real surprise to a lot of fishermen. But a knowledge of what this little sunfish eats is a big help when it comes to dishing up an attractive lunch some late June afternoon. One way of putting it is that the bluegill eats just about anything that is available. And while this is true to a large extent, they also can be exasperatingly specific in what they will take.

Jack Dermid

You can almost feel the bream in a spot like this. The only surprise is that you don't get a strike every cast. Bluegills can be exasperatingly particular about what they will take.

For example, fairly high on the list of bluegill goodies is the larva of the midge fly or crane fly. This is the critter that looks and sounds like a mosquito but doesn't bite like one. They range in size from half the size of a small mosquito, to the long legged creatures with a wing span of more than an inch. The aquatic form of this insect is an unlovely little wiggler sometimes called a bloodworm.

Actually the bloodworm is the immature form of the larger midges and may be over an inch long. Its smaller cousins often are the tiniest of worms in a drab brown color. The whole family enjoys the soft oozy muck of most pond bottoms prior to hatching into the adult insect. And bluegills love 'em.

In order to get a meal of these larvae, the bluegill ordinarily must root gently in the pond bottom or nose around vegetation. He may actually suck in quantities of silt in this process. The stomach contents of a fish thus feeding appears to be nothing but mud and bits of plants with an occassional worm in it. Most of the inorganic material won't digest, but the worms will.

Bluegills Often Feed Deep

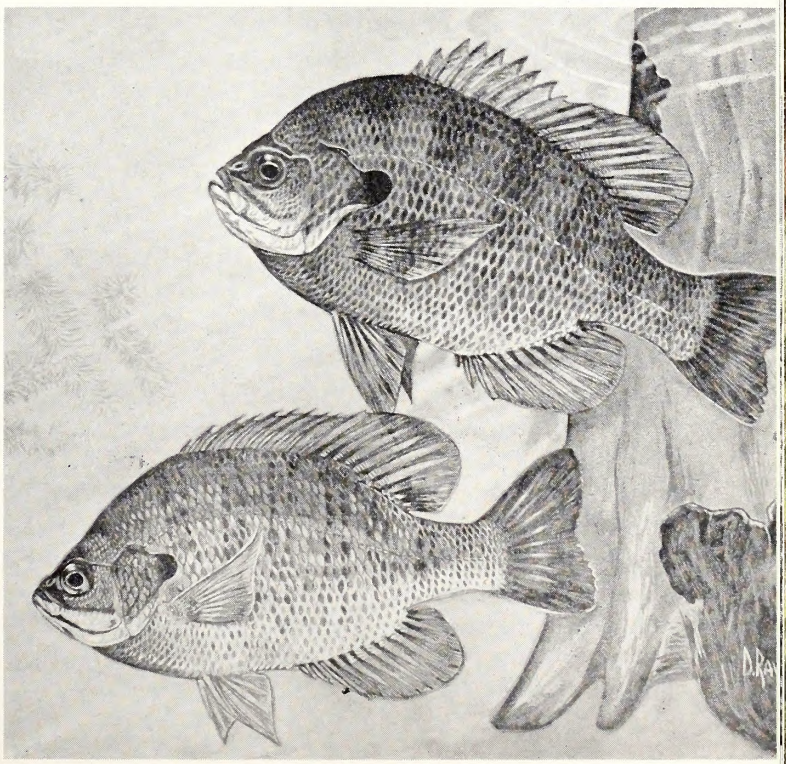
Now, all this means that bluegills feed frequently and heavily within a few inches of the pond bottom. And unless there is a large hatch of some sort of insect dappling the water's surface, your lure best be fished deep to pick up nice fish regularly.

Very few artificial flies resemble the larvae of these midges. Don't be dismayed. As a rule (if there are such things in fishing) friend bluegill won't be too persnickity and usually will inhale a small drab wet-fly fished near his feeding grounds, even though the offering doesn't even faintly suggest his food item at the moment.

In situations where bluegills are not regularly seen on the surface, sink a wet-fly deep and fish it slowly in bouncy fashion. Since you will not be directly in touch with your fly at all times, you may not feel the strike. But it will be telegraphed to you by a twitch of the end of the fly line where it

A stumpy farm pond seems ideal for scrappy bluegills. During early summer—best fishingtime—they roam the shallows in groups of 2 to 20 or more. Few fish equal them on the table.

Duane Raver



is fastened to the leader. Never take your eyes off this spot when you're wet-fly fishing for bluegills or you might miss the strike.

Although their mouths aren't exactly tough, bluegills present a hooking problem at times. Bring the rod up sharply and set the hook. It is at this moment that you are wondering about that 2-pound test leader holding. And sometimes it won't. The answer: a 4-pound test leader.

The days that try men's souls are those when bluegills are feeding recklessly on the surface and yet ignore every surface bug offered them. Why are they so difficult to catch at times like these? It may go back to that "specific feeding" thing. Tiny, black "bugs" dot the surface; fish are gluping them up. A tender (to the fish) honey bee crash-lands in the midst of the feast. Does she get gobbled up? She does not. And what's more she eventually drifts and struggles to shore unmolested.

And so floats our yellow and black popper, virtually catapulted out of the pond by the swirls of humpbacked bream eating the tiny black bugs. Fortunately for the nerves of us all, these occasions are rare. But the point is that extreme skill (and then some) may be required to snaffle a string of bluegills even at the height of a feeding spree.

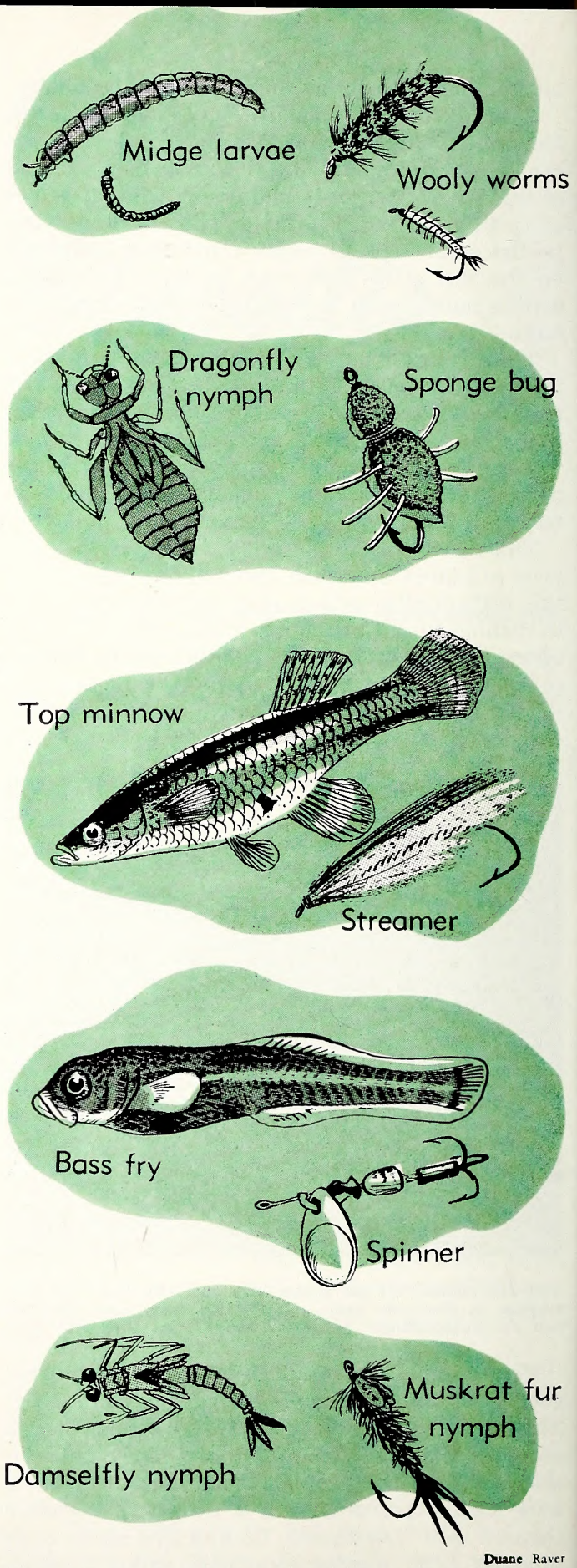
In many types of fishing, one key to success is the manner in which the lure is manipulated. The more life-like the action, the better the catch. One exception to this is top-water fishing for bluegills. At these times, absolutely no action, not even a movement of the bug, pays off. What the psychology of this situation is, so far as the fish are concerned, is a mystery. At any rate, be sure to try the "cast and let alone" technique when things get dull.

Sneak Up on Him

A bluegill is no fool. Nor is he blind. For these and other reasons, a small hook and light line will take far more fish when bait fishing with the cane pole than will heavier tackle. Further, a cautious, quiet approach will mean better fishing. Ordinarily, once the fish are located, several bluegills can be taken from a rather restricted area. And by the same token, the whole crowd can be spooked by one careless move with the tackle box or anchor.

Big bluegills very often turn to a fish diet and begin to run down fry of various sorts, including their own. Topminnows, bass fry, shiners, all are enjoyed by the hefty panfish. The wise angler then pitches spinners and other small lures resembling minnows toward the waiting bluegills. A slow, steady retrieve seems best when using spinners. The strike is usually a strong one and leaves no doubt that old copper nose has latched on.

Add a frantic fight and a delicious flavor on the table to his ready availability and you've got yourself a first-class fish in the bluegill.



Duane Raver

Here are some bluegill foods and the artificial lures that represent them. Quite high on the list is the larvae of the mosquito-like midge. Dragonflies and damselflies are taken by the larger bream. Imitations of small fish like the top-minnow and bass fry, work wonders at times. Go prepared to toss a wide variety of lures at old coppernose this season.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Conservation Roundup at Fontana

Fontana Village Resort will again host this year the second annual "Conservation Roundup" June 1-4 at Fontana. All conservation groups in North and South Carolina, Tennessee, Kentucky, Virginia and West Virginia have been invited, and invitations have been extended to the governors of the six states. The meeting will include an assembly of all groups participating and workshop discussions on various phases of natural resources and their multiple use. The idea of the roundup was conceived when the management of Fontana Resort realized that resorts depend on natural resources for their existence.

Public Hearings on Game Rules

Tarheel sportsmen and conservationists will get a chance to air their views with regard to setting the 1961-1962 hunting regulations at a series of public hearings. Following are dates, times and places:

May 23 District 9—Sylva
May 24 District 8—Morganton
May 25 District 7—Dobson
May 26 District 6—Albemarle
May 29 District 5—Graham
May 30 District 4—Elizabethtown
May 31 District 3—Rocky Mount
June 1 District 2—New Bern
June 2 District 1—Edenton

All meetings will be held in the county courthouse except at Rocky Mount, where the meeting is set for the city court room. All will begin at 7:30 p.m. except Elizabethtown where the meeting begins at 8:00 p.m.

Tentative Meeting Date Set

The Wildlife Resources Commission has set Tuesday, June 13 as a tentative date to establish the 1961-1962 hunting and trapping seasons. Regulations will be published and placed in the hands of license dealers by August 1.

A Gallery of Tarheel Babies

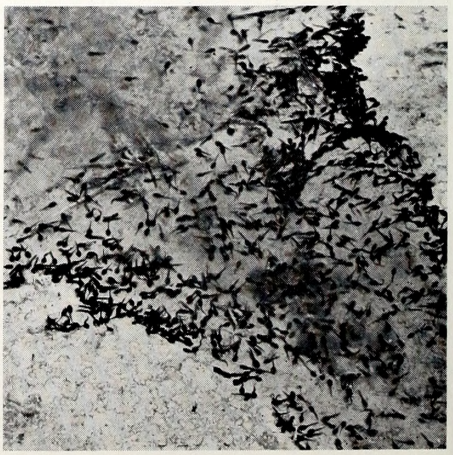
Photo Feature by Jack Dermid

Bountiful nature replenishes the land with life if living conditions are good.

SPRING is the busy season for wildlife. Everywhere out-of-doors, wild parents are tackling the tremendous task of replenishing the land with new life.

The bright-eyed youngsters pictured here are examples of the good job they are doing where habitat requirements are

Red-winged blackbird. Baby songbirds often scatter from the nest before they can fly, but anxious adults care for them.



Tadpoles. Mother Nature is lavish in producing individuals of species with low survival rates, insuring race continuation.

fulfilled. While Ma Possum grows weary from toting about her family, new broods of wild turkeys are appearing in remote bottomlands and newborn fawns stretch their gangly legs in secret hiding places.

But the story is not so promising where the land has been abused—where the essentials of existence are insufficient or lacking. How many ducks or herons will be produced in a drained marsh? How many quail on a farm without protective cover? How many squirrels in a burned-out forest?

The answers are worth consideration, for nature is inherently bountiful. Her wild creatures have the instinct to multiply and thrive if given the chance. And nothing gives wildlife a better chance than a good place to live.

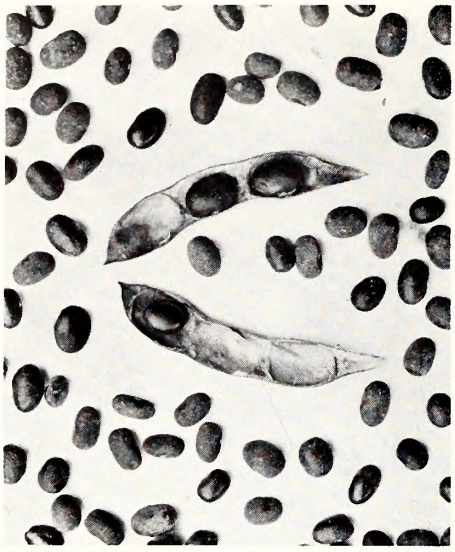
Louisiana Heron. Note the bird band. The feet and legs of baby birds are large enough at an early age for nest banding.

Cottontail. Baby rabbits are hidden in camouflaged ground nests. They are hard to see, but easy prey to free-hunting dogs.

Black Bear. When a cub cries out for his mother, beware. Few wild animals are more dangerous than an enraged bear with cubs.

Turkey. This poult died at the nest. Not all babies are destined to live, for it is nature's design that only the fit survive.

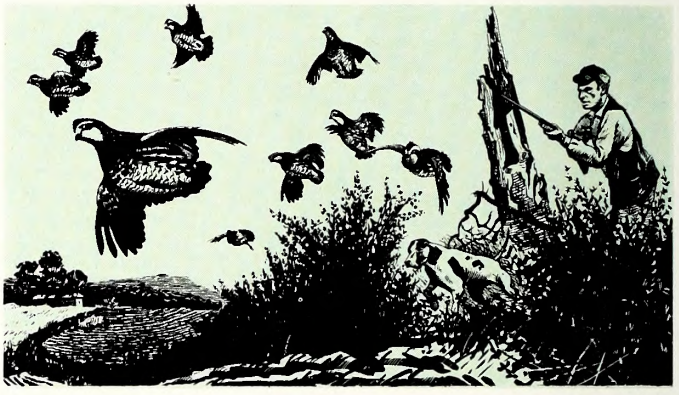
Osprey. Soon after the osprey on our cover was photographed, he flew to a stump a hundred yards away. Lane Willets, Commission employee at Orton Refuge, returned him to the nest on a paddle. Note the size of the youngster and the bulky nest.



The Wild Reseeding Soybean

by Karl E. Graetz

Plant Materials Specialist
Soil Conservation Service



The Wildlife Resources Commission teams up with the Soil Conservation Service to propagate and field test a wild soybean from Japan. The results promise better hunting.

IN the biologist's continual search for wildlife plants, a new species — wild reseeding soybean — has been successful in both nursery and field tests. The seeds are readily taken by quail and they show potential value as wild turkey food.

The bean is actually a wild species which was found in Japan, and is very likely one of the original parents of the common soybean. It was first increased in 1955 at the Soil Conservation Service Plant Material Center in Americus, Georgia.

In the spring of 1957, a pound of wild soybean seed was brought to the North Carolina Wildlife Resources Commission Nursery at Chapel Hill for observation in the joint plant testing program with the Soil Conservation Service. The results were promising. James Odom, nursery manager, has now parlayed this one pound of seed to a three-acre seed block. This represents the largest—possibly the only—seed block of its kind in this country.

Wild reseeding soybean is a summer annual legume. The stems are long and trailing, in contrast to the upright growth of the regular soybean. The vines will climb up for support on taller growing vegetation. Growth at the beginning of the season is slow. In late summer, the plant seems to take on a sudden spurt which usually buries common weeds that have a more upright growth. Seed mature in late October and begin to shatter soon after ripening. They are about half the size of a regular soybean, and vary in color from a shiny or drab black to a dark olive green.

Seeds Last All Winter

The one outstanding feature of this reseeding bean is that the seed are hard coated. They will lie on the ground all winter without rotting and remain available for wildlife use. In the spring the seed volunteer profusely to produce a new stand. At the nursery, it has been found that disking the land in early spring is not necessary to get reseeding. This not only simplifies management, but also eliminates annual land preparation and exposure to erosion. When large amounts of dead plant material accumulate, or if native perennials begin to dominate, spring disking will be helpful.

The three-acre seed block at the Chapel Hill nursery is combined in late October to early November. The loss from shattered seed is heavy. Last fall the field produced 715 pounds—probably less than one-third of the total yield. More seed could be saved if the vines were cut slightly green and stacked for later threshing. Further selection work is under way to develop a better seed holding variety.

Plantings have been established in several counties to study the plant under field conditions. Observations indicate that the adapted range is limit-

ed to the Coastal Plain and Piedmont. Moderately fertile soils are required. It will not do well on deep sands or poor, eroded sites.

Choice Quail Food

Quail shot in two of these fields were "full of beans." These observations were taken from the plantings on A. L. "Jack" Maynor's Game Farm in Cumberland County and on the farm of Elbert A. Cook in Craven County. In both instances the beans were planted in corn rows. It is usually necessary to plant the bean with some other crop (corn, milo, etc.) to support it and provide open ground underneath where the birds can feed. Its use with the perennial Clanton tickclover, *Lespedeza bicolor* or *Lespedeza japonica* also looks promising. In this case, the perennial plants afford a ladder on which the bean can climb and find its place in the sun.

Enriches the Soil

When planting wild soybeans on crop land, it must be remembered that it will come back as a volunteer in the succeeding agricultural crop. This would be an advantage, for example, on Class I land which is planted more or less regularly in corn. The bean would help supply nitrogen and beneficial plant residue, would not interfere with the corn harvest, and would then provide a large winter feeding area for wildlife.

It will not be a pest in small grain because of the early grain harvest. In crops such as commercial soybeans, peanuts, tobacco and cotton, it may induce a farmer to throw down his hat and stomp on it. However, close cultivation while the beans are still small should take care of these situations.

Cattle find the wild soybeans extremely palatable. In fact, its long, thin stems and numerous leaves would make an excellent hay or silage (a facet still to be explored). Therefore, it is necessary to fence these wildlife plantings or to keep the cattle out by other means.

Rabbits, too, are partial to the tender, young soybean plants. Small plantings near good rabbit cover will usually suffer heavy damage.

Continual Search

The discovery and successful propagation of the wild reseeding soybean is just one of the many examples of the biologist's search for better wildlife food plants. It is reasonable to suppose that all of our wild game animals are perfectly content with the variety of foods they eat. Certainly they have a wide selection, some of which are choice; others not so tasty.

The availability of sufficient *amounts* of food is another matter. Wildlife survival is directly related to this factor. Therefore, in the search for new plants, the goal is to increase the available supply of food rather than increase the variety.

From man's management point of view there is no "dream" plant—one which will yield regularly year after year without any care. Annuals usually require the most management, and the perennials, such as shrub lespedeza, the least. All of them fail, sooner or later, if they do not get the necessary attention.

Lack of management is the major reason for failure in wildlife plantings. In addition, disease, insects, fruiting cycles and vagrancies of the weather cause the food yields of various plants to fluctuate from year to year. Since no single plant species seems to be a sure bet, many biologists are getting away from the "one plant for one game species" type of planting. They favor the use of several plants. If one fails, another will be there to make up the deficiency.

The biologist needs a variety of plants in his kit. He can then prescribe certain combinations to fit existing soil and site conditions, and to fit the probable level of management they are likely to receive. Thus, the search for new plants must go on—not only to suit the palates of our wild "critters," but to suit man's management problems.

Limited Supply Now Available

Wild soybean seed is available in small quantities through the State Game Management Specialists and Work Unit Conservationists of the Soil Conservation Service. The bean was also included in a great many bags of the annual mixture distributed by the North Carolina Wildlife Resources Commission this spring.

So if you plant a bag of this mix and find a "scrambly" looking plant holding on to everything else for support, don't be moved to sympathy—that's that *wild* soybean.

Wild reseeding soybean is compatible with modern agricultural methods. In a cornfield, the bean climbs the stalks to find a place in the sun and produces an abundance of food for quail.

Soil Conservation Service

"Wow, look at me now!" A grapevine swing and happy boys are symbolic of the carefree weekend spent in the wilds of the Uwharrie area.

Many boys saw their first deer during the campout, an exciting experience they will long remember. Others found shed antlers or followed tracks.

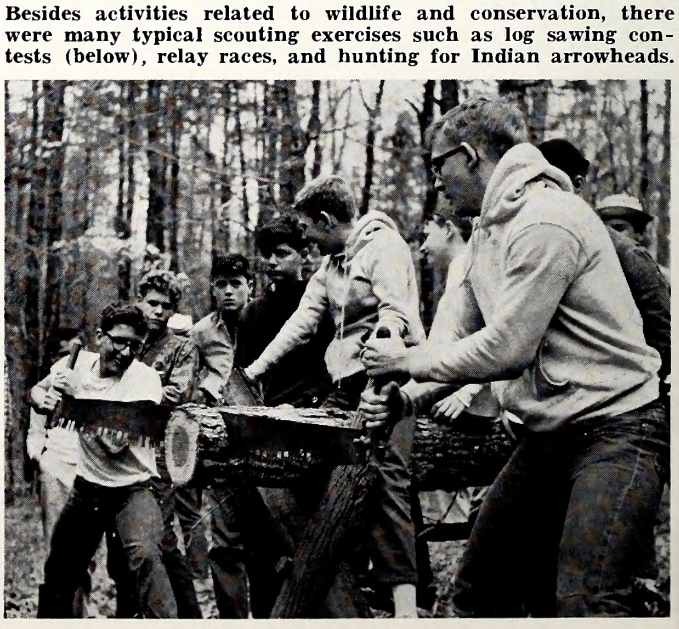
Operation Paul Bunyan

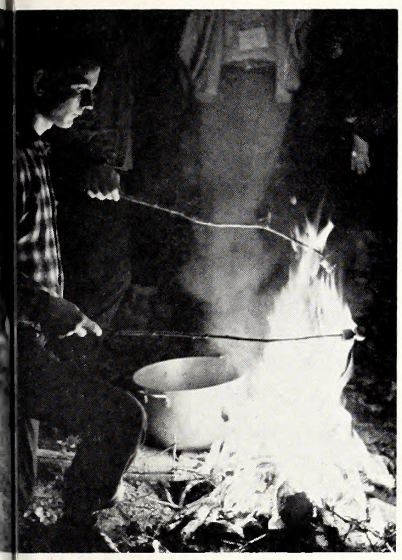
Photo Feature by Jack Dermid

The Uwharrie Wildlife Management Area is host to Explorer Scouts for a weekend of fun, exploration, and wildlife education.

Personnel of the Wildlife Resources Commission cooperated with scout leaders in presenting a successful program. Here, Protector Cleat Poole of Troy assembles a skull on nature hike.

Besides activities related to wildlife and conservation, there were many typical scouting exercises such as log sawing contests (below), relay races, and hunting for Indian arrowheads.





Glowing campfires provided contentment during chilly evenings, marshmallows a treat. All meals were cooked over fires or hot coals—good eating.

Tents of all shapes and sizes and jungle hammocks housed the Explorers. The campsite was near a good spring and a hidden cove of Badin Lake.

LAST April 14-16 were exciting days for the 170 Explorer Scouts who pitched their tents in the wilds of the Uwharrie Wildlife Management Area in Montgomery County.

They came from the Charlotte area, and they called their project Operation Paul Bunyan in honor of the legendary giant woodsman who did things in a big way. The campout was truly in keeping with the traditions of Bunyan himself.

But Operation Paul Bunyan was more than a weekend adventure in the woods. It was an educational experience designed to create an awareness of conservation in the minds of the scouts and to let them see for themselves the true values of our forests, waters, and wildlife. They learned, too, about the problems of management and how governmental agencies attempt to solve these problems.

The Explorers came with the enthusiasm of youth. It was the first time many of them had visited a wildlife refuge, seen a wild deer, or followed raccoon trails. The program was informal with plenty of time allowed for nature hiking. The scouts ranged the woods far and wide, discovering everything from shed deer antlers to an owl's nest.

Other activities included firearm and archery demonstrations, wildlife photography, casting animal tracks, tree climbing, relay races, log tossing contests, and the showing of conservation and national defense motion pictures.

Operation Paul Bunyan was sanctioned by the National Council of the Boy Scouts of America and was the first outing of its kind in the nation. The idea was conceived by Richard E. Clapp, a special scout consultant, who would be glad to supply any interested scout leaders with complete details of the project. His address is Department E-250, Douglas Aircraft Company, Charlotte.

Its success was the result of cooperation among scout leaders, government agencies, and the scouts themselves. Explorer Post 10, which is sponsored by the Management Club of the Douglas Aircraft Company, was host for the operation, and all Explorers of the Mecklenburg County Council were invited to participate. The Marine Corps Reserve provided truck transportation to Uwharrie. Personnel from the State Parks Division, State Forestry Division, National Forest Service, and the Wildlife Commission assisted during the outing.

Ollie Thompson, Uwharrie refuge manager, summed up Operation Paul Bunyan with these words, "I've never seen so many boys have so much fun, but even more important, they will all take home a better understanding of the out-of-doors."

Future hunters learn about weapons. The gun show by Wilbur Baskerville of Remington Arms and the archery program by the Sapona Archery Club of Salisbury were good instruction.

MANY years ago, on a sunlit day in late June, two teenage boys launched a 17-foot aluminum canoe on Basswood Lake in northern Minnesota. This is a scene that is repeated thousands of times each year, but in this particular case neither of the boys had ever set foot in a canoe before and their destination was some 75 miles away in a roadless section of Quetico Provincial Park.

Along the way would be stretches of open water a mile or two across; tricky rapids; boulder-strewn shallows. The only description that fits this situation is "plumb foolishness." No experience whatsoever; a craft safe enough but only when handled right; no aid in case of trouble except for an occassional camper or Forest Service plane; foolishness.

The two boys returned 18 days later, paddling in long professional strokes after a trouble-free trip. Luck no doubt was with them. I know, for I was in the stern of the canoe.

Let's hope that they can swim. Even with the extra floatation tanks on the sides, this canoe must be handled with caution.

Jim Lee

The point of this rather lengthy introduction is that many of us take chances even more hazardous than this canoe trip, and do so without any more thought than sitting down to the dinner table. Boating can be a safe sport and an enjoyable one if we will simply use our heads.

For example, take rough water. And often we *must* take it. Weather and water conditions can change in a matter of minutes most any time of the year. A calm, friendly lake or sound can become a fearful foe before shore can be reached. What do you do?

The best thing is to avoid these situations if at all possible. But if you are caught with whitecaps springing up, swing the boat's bow gently into the wind and head for the nearest shelter. Often these two maneuvers aren't compatible, that is, the nearest shelter may well be down wind or at right angle with it. To have a strong wind at the stern can be as dangerous a squeak as you'll find. A "following sea," one that surges waves up on the stern or even over it, is rough.

Tom Rollins

When strong winds whip open water, select a sheltered cove or bay for launching and boat operation. Don't take any chances.

Boat speed is quite critical in avoiding waves sloshing over the stern as you proceed down wind. Watch the waves and keep ahead of them or on top of them. Many boats sporting outboards nowadays are equipped with stern troughs to catch water and lead it safely back outside the boat. Don't rely on this safety device entirely.

Quartering waves, or angling into them can be a wet proposition, but generally a safe one—at least far safer than having the waves hit the craft broad side. Much of the safety of rough water travel depends on the size and construction of the boat. If heavy seas are likely to be encountered, select a design that will take it, or don't go out.

Out-of-State Boating

We hope that you're not leaving for long, but if you are planning a visit to another state and plan to take your boat, make certain that you know the state's boating regulations and that you have your craft properly numbered in conformance with that state. Even though you comply with North Caro-

Evinrude Motors

Here is an accident looking for a place to happen. Skippers who play it safe will not allow seat-changing while underway.

lina's numbering and equipment regulations, you may not be right with your visited state. Reciprocal regulations pertain to numbered boats only.

According to present North Carolina law, boats powered by machinery of more than 10 horsepower must be numbered before they can legally operate on our waters. However, many states require *all* mechanically powered boats to be registered; others set the horsepower at various levels.

Accident Reporting

North Carolina's Boating Safety Act requires a written report from the operator of any boat (numbred or otherwise) that is involved in a boat accident that results in the death of any person, or injury incapacitating the victim for more than 72 hours, or that causes property damage in excess of $100.00.

This report is to be made within 10 days of the accident and on forms provided by the Wildlife Commission. Reports from accidents occurring in 1960 were coming in as late as mid-March of this year. In some cases prosecution followed for failure to report on time.

Several fatal accidents were discovered only by close examination of newspaper clippings and for that reason figures were released on the total number of accidents, injuries, fatalities and property damage which were incomplete. We hope that you don't have an accident, but if you do, report it.

Several fatalities resulted from capsizing of and falling from small boats while adrift or at anchor. The fact that these craft were not "underway" makes no difference to the necessity for reporting.

Boating Vacations

Any day now, the vacation bug will bite you if it hasn't already. Splashy ads of white sand beaches or pine-scented mountains will send the family into the vacation orbit.

Why not consider a boating vacation? Or at least plan to take your boat and select a location that offers boating possibilities. These range from tiny mountain lakes to the wide coastal sounds, and from luxurious beach hotels to camping under the stars at a public camp site. Any way you figure it, your vacation will be more fun for the whole family if you include a boat in your plans.

But like everything else that turns out well, a boating vacation takes some careful planning along with safe execution.

Those who trailer their boats have many advantages. The boat can serve as a trailer in which to stow most of your gear and vacation clothing, thus keeping the car uncluttered. Whether going to a resort or to a camp grounds, your boat will possibly be the center of your fun activities while on vacation. Be sure you have along the equipment that will enable the kids, as well as the rest of the family, to enjoy the full range of water sports. A boat can make the most enjoyable vacation you've ever had. You might even explore several different areas, especially if you camp and take your boat along.

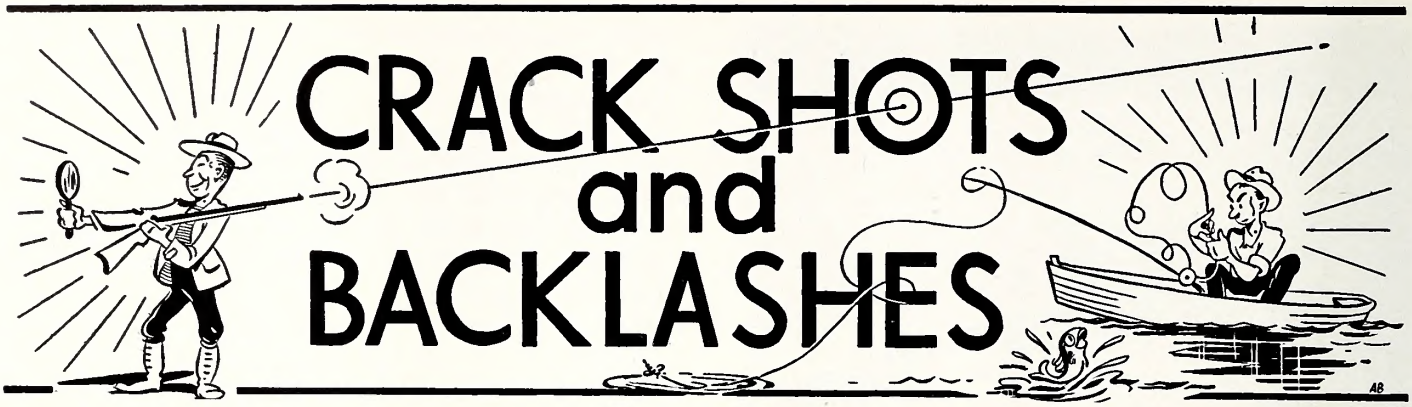
If you plan extensive cruising on your vacation, you should gather all the information possible about the area in which you wish to cruise. Coastal charts are published by the U. S. Coast and Geodetic Survey, Washington 25, D. C.

Several major oil companies publish excellent cruising guides and charts. Included are: The Texaco Waterways Service, 135 East 42nd Street, New York 17, N. Y.; Mobil Oil Company, Touring Service, 150 East 42nd Street, New York 17, N. Y.; Gulf Cruiseguide Bureau, 17 Battery Place, New York, N. Y. These guides are very useful in that they provide sufficient detail of large areas for the average inland boatman. They show places of interest, access roads and distance.

Above all, be careful. Be prepared to take care of the minor but uncomfortable injuries like sunburn, scrapes, fish hook nicks etc. Also know how to handle more serious troubles such as rescue and artificial respiration. Have a safe boating vacation.

A safely operated boat can add real fun to your family's vacation. Have your craft fully equipped with safety devices.

Evinrude Motors



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

The Right to an Opinion

We believe that everyone is entitled to hold opinions and to express those opinions within the bounds of reason and good taste. It is the editorial policy of this magazine to print letters from readers regardless of whether such letters are complimentary or of a critical nature. We do not print anonymous letters except in rare circumstances where the idea involved is worthy of expression. Correspondents who bring up touchy subjects may request to have their names withheld, and such requests are granted.

Occasionally a correspondent will mention trade names of various products. This could be construed as giving the manufacturer of the product free advertising, and we prefer that trade names be omitted. We do not accept payola from manufacturers whose products are named although sometimes samples of named products are offered.

We have expressed some of our opinions above, and we are grateful to our readers for doing the same below.

Mae Riddle Greene, Spruce Pine, sent us this bit of versified philosophy. We like it, and think you will too:

Fishing Fever

There may be wrinkles in my face,
My steps a little slow
My head, the top
May shine a bit
Where thick hair used to grow.
My eyes may be a little dim,
But that don't mean a thing.
When fishing season rolls around
I'm just a boy again.

National Wildlife Federation

25th Annual Convention, Washington, D. C., March 2-5, 1961 *Resolution No. 7*

JOHN KERR RESERVOIR NATIONAL WILDLIFE REFUGE

WHEREAS, the United States Department of the Interior, Bureau of Sport Fisheries and Wildlife, in February, 1960, announced its plan and its readiness to establish a National Wildlife Refuge on the John Kerr Reservoir located

in North Carolina and Virginia, such reservoir having a surface acreage of 95,000 acres and such refuge to contain approximately 19,000 acres of land and 17,200 acres of water; and

WHEREAS, such establishment is contingent upon the reclassification of certain government controlled lands and transfer from Corps of Engineers to the Bureau of Sport Fisheries and Wildlife, and also upon the acquisition by negotiation of certain privately held lands; and

WHEREAS, under the terms of the Fish and Wildlife Coordination Act, as amended in 1958, authority is provided for the Secretary of the Army to make these lands available for wildlife coordination programs; and

WHEREAS, the establishment of this refuge is endorsed by the Atlantic Flyway Council, the North Carolina Wildlife Resources Commission, the Virginia Commission of Game and Inland Fisheries, and the Kerr Reservoir Development Commission, the North Carolina Wildlife Federation, and the Virginia Wildlife Federation; and

WHEREAS, conflict with the present major recreational activities would be minimal as the waterfowl use would be limited to the colder seasons of the year; and

WHEREAS, since the time that the plans for this refuge were made public, organized opposition to its establishment has been made by several grassroots organizations led by a small group of landowners in the vicinity of the refuge; and

WHEREAS, it is felt that much of the support for this organized opposition comes from persons who are badly misinformed as to the effects of such establishment and that an educational program of the true facts which would reach individuals and groups in the area is indicated to insure the acceptance of this plan and to minimize this opposition; now

THEREFORE BE IT RESOLVED, that the National Wildlife Federation, consisting of over 2,000,000, members, endorses the establishment of the John Kerr National Wildlife Refuge and further offers its active leadership to the coordination and execution of such an informative program that would give those now opposing

this establishment the true facts with regard to the advantages and disadvantages of this refuge; and

BE IT FURTHER RESOLVED, that copies of this resolution be transmitted to all the members of the North Carolina and Virginia delegations in Congress, the Atlantic Flyway Council, the North Carolina Wildlife Resources Commission, the Virginia Department of Game and Inland Fisheries, the Kerr Reservoir Development Commission, and the Departments of the Army and of the Interior.

Does It Work?

DEAR SIRS: This past Christmas a friend of mine gave me a "Krafty Fish Caller," for a Christmas present. Since I do a lot of fishing on the Catawba River here, I would like to know if it is legal to use it; as it has two small batteries in it, a little smaller than ordinary flashlight batteries. This gadget makes a buzzing sound that is supposed to call the fish up to my hook and bait; it doesn't injure them, so I understand. I haven't tried it yet. Let me know if it is legal or not. Thanks. C. C. WORKMAN, CORNELIUS.

Thank you for your interesting letter regarding "Krafty Fish Caller." Since this device does not use electricity directly to take fish, you may use it legally in this state.

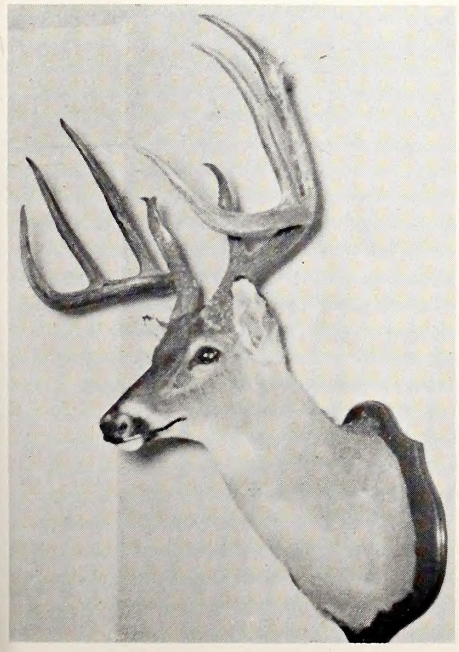
A Friend in the State

DEAR SIRS: Thank you for permitting me to partake, once more, of the world's greatest bargain. On a recent camping trip through your state, we were fortunate to be permitted to pitch our tent in Wm. Umstead Park. Didn't expect to find anyone we knew there; but imagine our surprise to find an old friend! There on the ranger's desk, it was a copy of Wildlife. We felt right at home.

Your covers alone are worth more than the subscription price, and I wish more states had similar publications. WALTER L. PRATT, BRISTOL, CONN.

Many other states have magazines like ours, and the competition for national recognition is keen. It may interest you to know that our circulation is more than 70,000 copies per month.

This fine 10-point buck was bagged by Kendrick Speight of Albemarle in the Uwharrie Mountains near Badin. Total measurements under Boone and Crockett Club rules are 157 1/8. The greatest spread is 24 inches. Note the unusually long tines.



Want to buy a duck or a goose? You can't buy waterfowl literally, but you can invest in better waterfowl hunting. Though the shooting season is past, the Fish and Wildlife Service is urging all sportsmen to buy an additional duck stamp. Money from the sale of these stamps will go to buy more refuges for waterfowl. Send your check or money order to the U. S. Fish and Wildlife Service, Washington, D. C., and get this certificate—proof that you are a sportsman. It is suitable to frame.

A Slaughter Or a Harvest

DEAR SIRS: I would like to know whom I could contact to find out if the open season on doe deer can't be stopped in Richmond County. It is only afternoons but the population of our deer has decreased by leaps and bounds in the last five years. Last year they were literally slaughtered. We, the people of Richmond County, just don't think it is right.

I am 46 years old and I have been hunting and fishing since I was 12 years old. I remember when one couldn't find a deer track in this county and I don't want to see it like that any more. We have many hunters now—more than ever before—but our sportsmanship is not too good. For example, if we kill all our women, who is going to have our children?

I would like very much for this letter to be published in Wildlife Magazine, and will thank you very much for any information that will discontinue the slaughter of our does in Richmond County.

Truly a hunter. FRANK JACKSON KELLY, ROCKINGHAM.

Doe seasons are held only in areas where deer populations have grown beyond the capacity of the range to produce food, or where deer have done damage to agricultural crops and then only after public hearings have been held to consider local sentiment. Such a hearing will be held at Hoffman High School in September. Local papers will give date and time.

More About the Nutria

DEAR SIRS: In the February 1961 issue of the Wildlife Magazine you had a short article about the nutria (coypu). A big discussion has arisen from this article and I would appreciate it very much if you would please explain to me why the pelt of this animal is valuable in South America and not here in the United States. Does the pelt of the animal in South America resemble "a growth of crab grass" too? If not, please explain. I am enclosing a stamped, self-addressed envelope for your convenience in replying to my letter.

I am a new resident of the State of North Carolina and a new subscriber to your magazine, I have received three issues, and I would like to say that I enjoy reading it very much. KENNETH D. HOPPER, ELIZABETH CITY.

Thank you for your letter of February 27. We delayed our re-

PROTECTOR OF THE MONTH

Charles A. Boone

The Nash County Wildlife Protector, Charles A. Boone, was born in Sanford on February 10, 1929. He is a graduate of Needham Broughton High School in Raleigh.

Al, as he is known by his many friends, served as a crash and rescue man in the United States Air Force from December 1950 to December 1954, being stationed in Tripoli, North Africa for eighteen months. He was employed as the Nash County Wildlife Protector on October 1, 1955, after having completed the pre-service training school for Wildlife Protectors at the Institute of Government in Chapel Hill. He has also attended four in-service training schools.

Al is the son of Mr. and Mrs. John C. Boone of Raleigh, and is married to the former Nell Ellis of Gates County. They have one son, and are members of the Red Oak Baptist Church.

DIVISION ENFORCEMENT RECORD FOR MARCH

HUNTING & FISHING:	
Persons checked	17,356
Total prosecutions	257
Total convictions	249
Total cases not guilty	5
Total cases nol prossed	2
Total cases dismissed	1
Total fines collected	$2,463.60
Total costs collected	$1,936.80
BOATING:	
Boats checked	746
Total prosecutions	48
Total convictions	47
Total cases not guilty	1
Total cases nol prossed	0
Total fines collected	$ 302.50
Total costs collected	$ 434.05

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commision or its personnel.

ply to do some research on the nutria. Apparently the North American food and climate factors are not suited to the production of high quality fur on these animals, and the technique for pelting is different from that used in South America. Only the underside of the fur is of marketable value; the fur on the back being of very poor quality.

Trout Licenses for Designated Waters

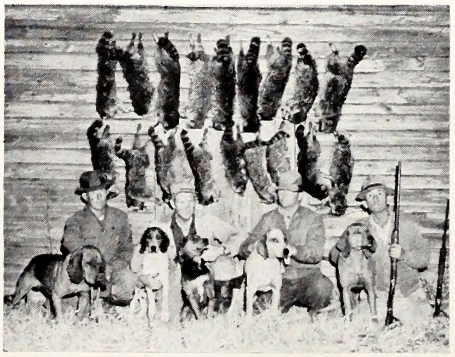
DEAR SIRS: Last summer a friend of mine went to Nantahala Lake for a few days of bass fishing. He was told on arrival at the fishing lodge that he must purchase a trout license in addition to the State fishing license, which he had. He, like myself, was aware that a trout license was necessary in some waters but we did not know they were required to fish for bass; though bass and trout are stocked in Nantahala.

This law sounds as unfair as telling a deer hunter he must buy a duck stamp to hunt deer in certain sections of the state.

Since my impression has always been that a State fishing license entitled the bearer to fish for bass anywhere within the limits of North Carolina, I am interested to know the details of why such a law exists.

I would again like to praise your publication for its informative and interesting reading. GENE SCHOLL, DURHAM.

Natahala is designated as mountain trout water. The special trout license is required in all such waters, even though species other than trout are found in them. *Public* mountain trout waters are the only waters so designated, and the revenue from the trout licenses is set aside for the operation of the hatchery system used to stock these waters.



Charles Barden

Johnston County coons provided top sport during the past season. Shown with five night's take are (left to right): Major Parrish, Moody Clemmons, owner of the dogs, Burlon Honeycutt, and Alton Wood.

Goodby Fishing

DEAR SIRS: Send me Wildlife another two years. I feel very sad as I write this letter. This will be the first year in a long time I will not own a combination Hunting and Fishing license, $5.25. Here is the reason: fast speed boats and water skiers have driven us off the lakes. It is no pleasure to try to fish with the water pounding and having your lines cut with power boats. It is too unsafe to risk your life on the lakes these days.

Outdoor Life Magazine reported thousands giving up licenses just like me. Goodbye fishing! JESSE KNIGHT, BOOMER.

Two With One Blow

DEAR SIRS: Please let me know if I am within the laws of North Carolina Wildlife (legal or illegal) in the 1960-61 Hunting and Trapping Regulations. "Game Killed accidentally" Section 91, Paragraph (E) Chapter 113 of General Statutes, 1935.

Was turkey hunting on the Roanoke River lowlands five miles north of Scotland Neck on the 24th of November 1960, we had a flush that day. I was hunting with a friend; we made a blind; at around 3:30 we had two turkeys to come up in front of our blind. There were deer dogs running deer right next to the swamp. We could never get the turkeys within shotgun range. I have a model 94 Winchester 30-30 I take on trips sometimes; but I had my shotgun also. We made calls but never could get them any closer.

The first turkey was approximately 70 yards from us; the first turkey was a large gobbler. I said to my friend that if we didn't hurry and get them in range for shotgun I was going to shoot the gobbler with my rifle. We watched the two turkeys for three minutes, we then decided to shoot the gobbler with my rifle. I took good aim on him and did not see the other turkey when I shot. I saw my hit and the gobbler go down. We did not see the other one flush or run away. I then laid my rifle down and picked up my Browning and got out of the blind to get my kill. When I got to where he lay, picked up the gobbler and turned to go back I saw the other turkey laying about 10 or 12 feet behind me. To my surprise I found this other turkey was a 15¼-pound gobbler; the one I had intended to kill was a 15¾-pound gobbler.

That single shot from my rifle had gone through the first gobbler and struck this other one at about the same place. Of course, I did not know I was going to kill the second gobbler; but he must have been

VICTIM OF STRAY DOGS

The dead doe deer shown here is not a pretty sight, but reality is not always pretty. The deer was run down and killed by free-hunting dogs on the Curtis Creek side of the Mt. Mitchell Wildlife Management Area. Refuge Assistant Jack Kirkland (left) arrived on the scene in time to see two medium-sized half-breeds run off into the brush, but too late to save the 70-pound doe. The photo below shows claw marks on the deer's back. Kirkland estimates that between 10 and 15 deer are killed by dogs on the Mt. Mitchell area each year. Statewide, the Game Division estimates that over 2,000 deer are destroyed by dogs annually. Stray dogs, sometimes free-hunting pets, are a serious wildlife problem.

right in line behind the first gobbler. What of the daily bag limit? Please let me know if it is legal or illegal. JARRETTE BUNCH, SCOTLAND NECK

Technically, the law says that it is illegal to shoot game birds sitting on the ground, but this law is intended to protect roosting quail; no one, to our knowledge has been convicted of shooting wild turkeys on the ground. When "called up," turkeys are usually on the move. While the daily bag limit is one bird daily, who can be blamed for accidentally killing two with one shot?

A Richer Land, A Better Heritage

"Back to Nature" is a call which America needs to hear and heed, now more than ever. For decades the Machine Age has been moving our people increasingly from the soil to the city. And now the Space Age is luring our minds away from the earth itself.

The youth in our homes may be able to reach the moon before they die. But we and they will have to live on the earth. And we must learn to know it better if we are to live richer fuller lives.

From the good earth we get not only food for our bodies but also elements needed for our spiritual growth. "The fruit of the spirit," Saint Paul wrote to the Galatians, "is love, joy, peace"—all given rich meaning by nature.

Fruit cannot be manufactured; it has to be grown. It is in contact with Nature that youth catch the spirit of patience, humility, and cooperation necessary for the cultivation of character.

Nature centers provide recreation that really re-creates. They furnish fun with a constructive purpose. Whittier's "Barefoot Boy" with "torn hat brim" and "upturned pantaloons" had more "merry whistled tunes" than the lad whose only playground is the street or even the public park.

Keeping company with the birds and the trees and the flowers gives more lasting delight—and less delinquency—than hanging around with the drugstore crowd or the neighborhood gang.

And we must look not only to the conservation of human nature but of Nature itself. We sing of America:

"O beautiful for spacious skies,
For amber waves of grain
For purple mountain majesties
Above the fruited plain,"

These natural resources are not inexhaustible. Every decent American desires to leave to this land a race of people better than he found and also to posterity a land richer than he found. To fulfill this two-fold longing is the purpose of nature centers for young America—*Ralph W. Sockman.*

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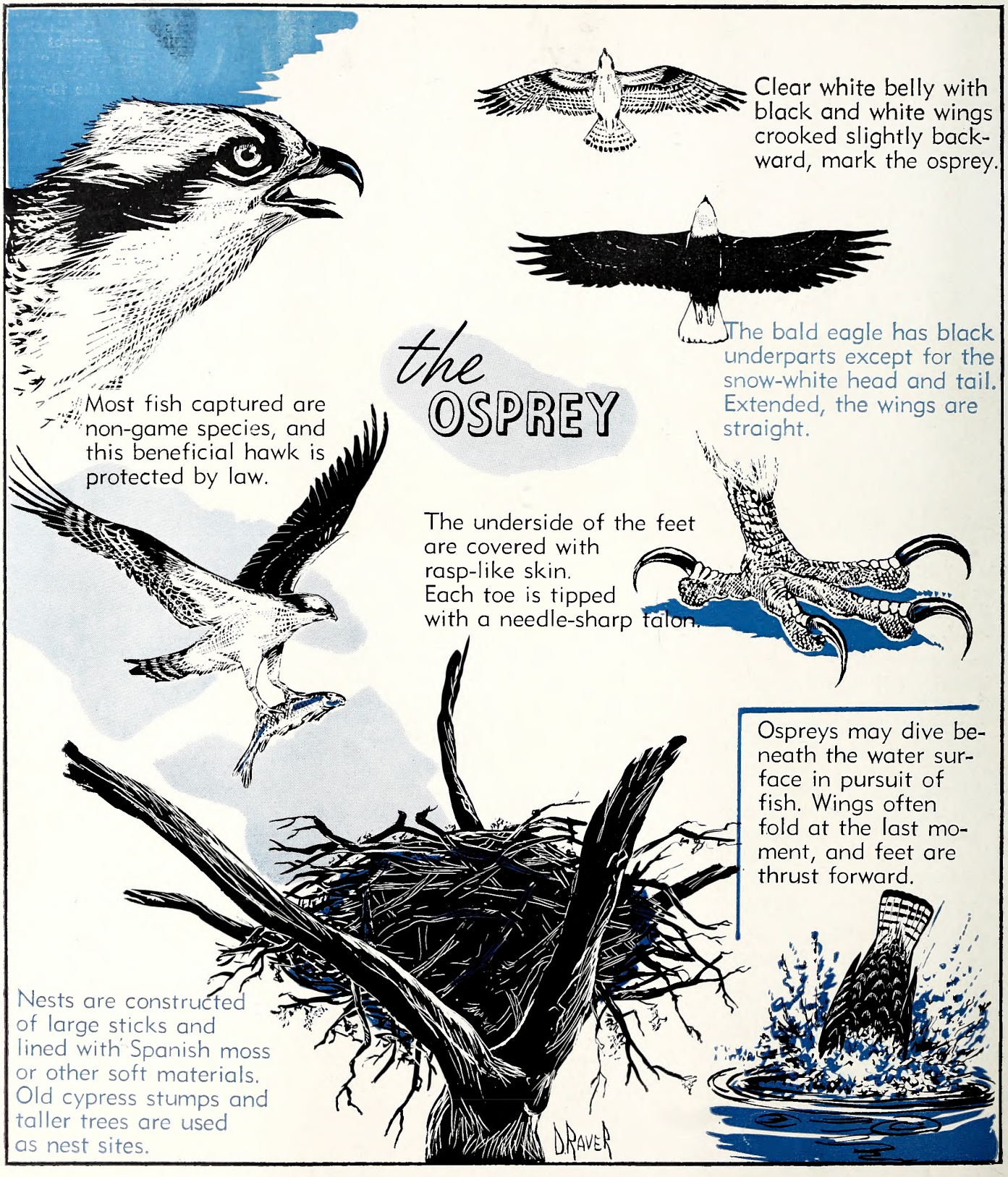

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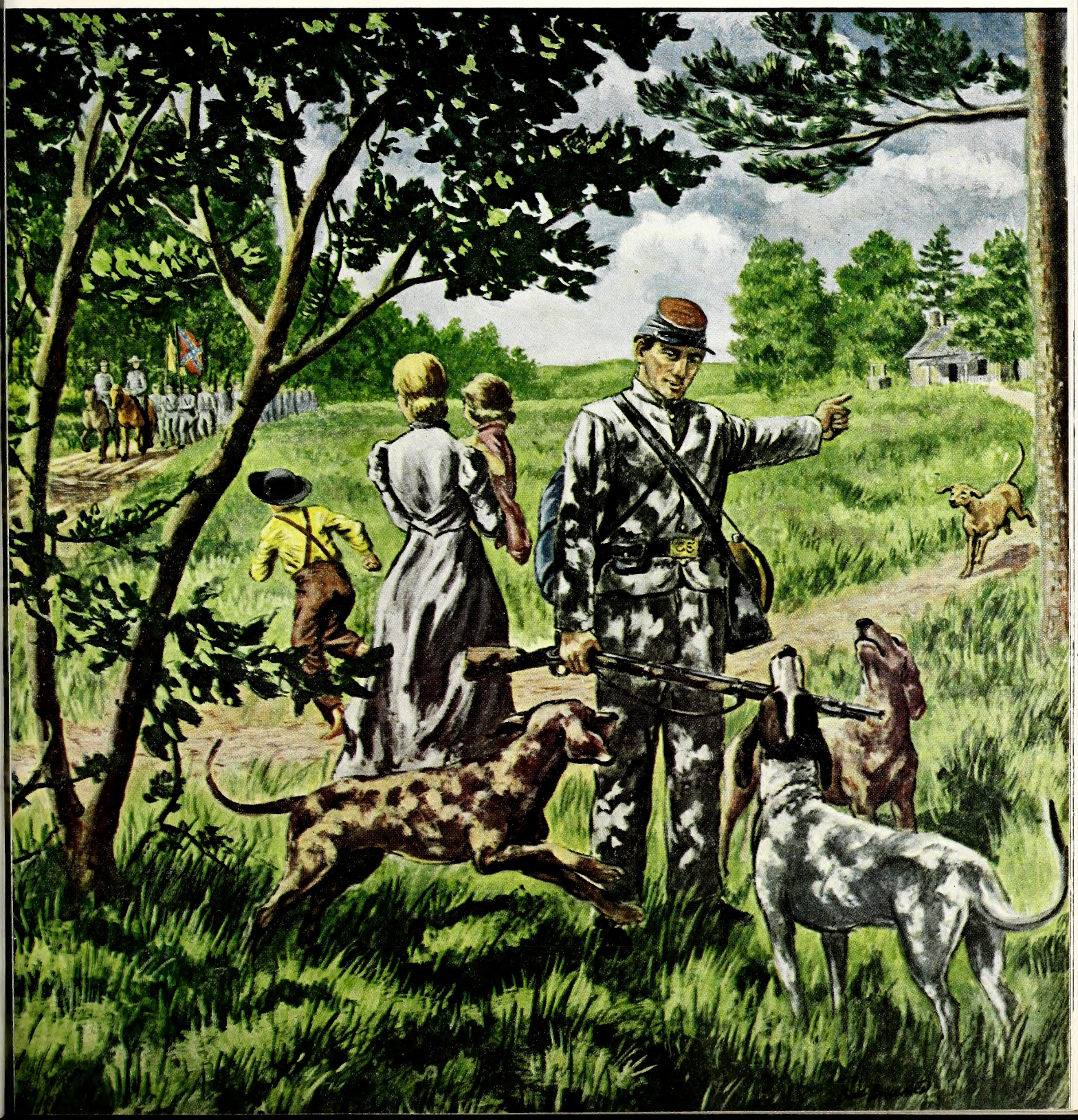

Jack Dermid

Prothonotary Warbler

Every angler who fishes the swamps, mill ponds, and meandering streams of eastern North Carolina knows the prothonotary warbler. Who could miss the conspicuous male with his orange-yellow head and breast contrasted with bluish-gray wings and tail? The female, shown perched at the entrance to her nest in an abandoned pump at Camp Bryan, is slightly less brilliant. Our abundance of birds surely adds enjoyment to every fishing adventure.

State of North Carolina

TERRY SANFORD
Governor

North Carolina
Wildlife Resources Commission

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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

Just how do you tell a hunting dog that a gun doesn't necessarily mean a hunting trip? The Confederate soldier on our July cover is faced with a problem that has come up many times in American history. As we celebrate the centennial of the Confederate States of America, let's remember that most of the men on both sides of that conflict were first trained in the use of firearms in the peaceful pursuit of hunting. For a discussion of the problem of free use of firearms by free men, turn to page 6. Cover painting by artist Bill Ballard.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

More Sportsmen— Less Land

by Hugh M. Fields
Extension Wildlife Specialist
North Carolina State College

G. T. Hammond

"Is this your idea of a hunting paradise that nobody knows about?"

NOWADAYS we hear a lot about the population explosion. We hear all sorts of predictions for the future: prospects of food shortages, standing room only, and depleted resources competing with increased commerce and unlimited prosperity. Which prospect is right?

Whatever the outcome, **the hunter and fisherman are going to be affected.** They stand a good chance of being seriously limited in, if not completely deprived of, their sport.

A century ago less than a million people lived in North Carolina. In 1940, some 3.5 million people lived here. Today, we have over 4.5 million people. In those short years since G. I. Joe picked up his M-1 to again "make the world safe for democracy," we have increased our population by the same number of Tarheels as all those present when Johnny Reb grabbed his musket and went off to "fit" the Yankees!

What does this mean to the hunter and fisherman? It means that you and I are having to share our sport with more and more of our brethren on constantly shrinking land. It is still there, but . . .

Where is the land going? A Sunday afternoon's drive will show you that we are using it to make room for more people. New subdivisions, shopping centers, schools and factories are springing up in what once was good hunting country. New roads and highways are taking up untold acres. A hundred-foot right-of-way a mile in length covers about twelve acres. Such land is being converted to very specialized, very limited uses and wildlife is being evicted from it.

We call this progress. And, if we measure progress by the yardstick of more people, more industry and more facilities, North Carolina is progressing. Such progress has its penalties.

We are going to have to depend more and more on state-owned public hunting land, especially for migratory waterfowl and for forest game such as deer. There is a limit to the amount of land that the state can acquire and manage. By necessity, public hunting areas of this type are usually on submarginal land, too infertile, too poorly drained, or too hilly to be used for agriculture or other purposes.

Farmland for Small Game

We are going to have to depend on farmland for the bulk of our quail and rabbit hunting. Obviously, this land is too expensive for the state to acquire and to maintain as public hunting areas.

Tarheel farmers own about three out of every five of the state's 33.7 million acres. What will be their reaction to more and more sportsmen flocking to hunt their land? If we can rely on the experiences of other states, as well as the growing signs in our heavier populated areas in North Carolina, we can predict resentment to sportsmen. Resentment which will result in more and more posted land which will further concentrate more hunters on less land causing more resentment and misunderstanding and posting. This is the "farmer-sportsman problem." It has not become a big problem in North Carolina. Yet.

Whose Game Is It?

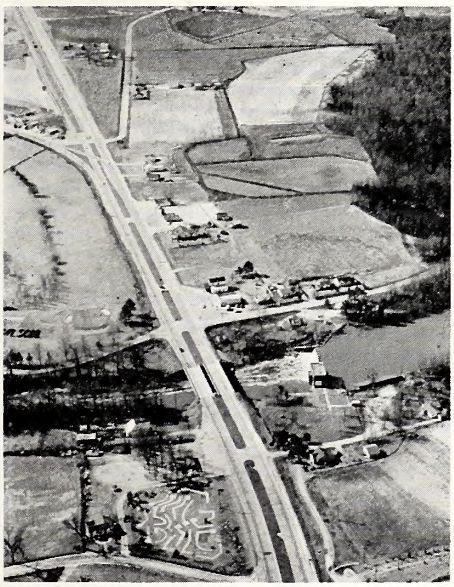
The problem has other aspects. The laws of wildlife ownership in the United States are unique compared to those in other countries. Each state owns its native wildlife. The individual does not own wildlife until it is reduced to possession. In other words, a quail belongs to the state until it is shot and brought to bag.

This basic law of wildlife ownership is good, but it presents several apparent problems. The rabbits on Farmer Brown's farm do not belong to him.

They belong to all of us, through the state. I have as much legal right to "reduce them to possession" as any other citizen, including Mr. Brown. Yet, if he refuses me the privilege of hunting on his land, I cannot exercise my rights.

Much Is Up to Farmer

It is easy to see that much of our hunting and fishing is up to Farmer Brown. The whole outlook depends on his attitude toward sportsmen and wildlife. If he resents either, both the hunter and the hunted will suffer.



Jim Lee

The space requirements of a growing population have taken up many acres of what was once good hunting land. Each year such demands leave less land open.

Our hunting prospects will grow dimmer as long as the landowner can complain about trampled crops, shot-up stock, trespassing, carelessness, and vandalism.

Some way must be found to insure adequate farmland and farm game to satisfy our future needs. We need to provide an incentive that will encourage the landowner to provide hunting land and produce game. The most obvious method, pay-as-you-go hunting, is not generally accepted by the farmer or the sportsman at present. No doubt this will become the commonest and most practical solution in the future.

The Sportsman's Solution

Meanwhile the sportsman, for his own good, must take the initiative and cast around for solutions. He must lay the groundwork by policing and eliminating delinquency in his ranks. He must remember that he is a guest on the land and is expected to act like, and be treated as, a guest.

Stop and think a minute—Is there any **real** reason why a farmer should let me hunt his land? Disregarding hospitality and good will, I can think of none. Does Mr. Brown benefit in any way by my hunting? Well, I may think he's a pretty good fellow, whatever that's worth. Is it worthwhile to Mr. Brown to take all the risks in order for me to have my sport?

The basic ingredients for a solution lie within each of us, both farmer and sportsman. We will never reach it until we understand the problems involved and accept the methods necessary in solving them.

The City Slicker and the Hayseed

First we must overcome the City Slicker-Hayseed concept that has become imbedded in our thinking over the years. At one time there was a great gap between our urban and rural people. Now this gap has all but disappeared. Can you spot the farmers in the crowd on the street?

Next we must quit taking things for granted. The sportsman must change his ways. He must forget the "good old days" when he hunted under no obligation to anyone but himself. He must quit taking the landowner and the land for granted. The days are gone when hunting was a one-way affair, with the hunter reaping all the benefits. Giving the landowner a part of our kill may still salve our consciences and let us pat our own backs for being good sportsmen, but it is no longer enough.

A Product of the Land

The farmer must also do some reconsidering. He must recognize the fact that wildlife is as much a product of his land—a crop—as his tobacco, corn or soybeans. It has tremendous value, in its own right. Wildlife is no more a "gift of God" than a tobacco field is. We don't take tobacco for granted.

The sportsman is also guilty of taking wildlife for granted. The old attitude of "I buy my license every year. I pay for fishing tackle, guns, shells, dogs, dogfood. I pay a lot for my sport and don't get much out of it" is narrow and ignorant. Hunting and fishing are expensive, as the economic surveys show us.

But, how much of our money, how much of our time, is devoted toward improving or even maintaining the status of game and fish? According to a national survey of fishing and hunting the average sportsman spent $114.42 in 1955. Less than six dollars of this, in licenses and federal aid funds, would ever benefit our wildlife resources! A mere pittance.

So, here's where we stand. We have the know-how to improve game and fish habitat. We have the ways to manage abundant game. We do **not** have a public concept of natural resource responsibility. We lack individual ethics and conscience. We fail to appreciate the moral and esthetic implications of a stable relationship between the sportsman and the farmer; man and land; land and wildlife. We must overcome our ignorance and complacency. Unless we start working, right now, much of our hunting and fishing will go the way of the dodo and the buffalo.

Wildlife is a product of the land, and the yield in terms of game and fish depends on the landowner. Yet much depends on the individual hunter, who by his behavior can create an atmosphere of welcome or open hostility because of carelessness.

Jim Lee

Johnny Get Your Gun!

by Jim Lee

THE role of the hunter turned soldier stands written in bold paragraphs throughout the history of our nation. From the slopes of Kings Mountain—where North Carolina militiamen turned the tide of the Revolution with deadly marksmanship aimed at British redcoats—to the icy ridges of Korea, the shooting skill of American citizens has been a decisive factor in the endless struggle to remain free.

In every war a small cadre of professional soldiers has been joined by hordes of civilians taking up arms in defense of their country. And in the United States, most of these civilians in uniform first learned to shoot at far more innocent targets in pursuit of food or sport. Unknowingly, the training of a young hunter has often served as preparation for a far more serious task.

Yet today your right to own and use firearms is in jeopardy. In state legislatures and in the halls of Congress, bills are proposed each year that would control the ownership and use of sporting firearms.

Illustrations by Bill Ballard

Where do these laws originate? What are they designed to do? And how could they affect your right to use firearms for hunting, plinking, self-protection, or simply for the pleasure of owning them?

Well-meaning—and sometimes not so well-meaning—attempts to require registration of all firearms come much too frequently from law enforcement agencies, civic organizations, even game commissions. There are also efforts sponsored by a startling array of subversives and crackpots.

Their purposes are varied, but their arguments are similar. "Crimes of violence and firearms accidents," they say, "can be reduced through strict control over the possession and use of private firearms."

But the dangers hidden in these recommendations go far beyond the purpose of controlling crime and gun accidents. The historical record shows that no dictatorship has ever been imposed on a nation of free men who have not first been required to register their privately owned weapons.

Safeguards in the Beginning

The Second Amendment to the United States Constitution says, "A well regulated Militia being necessary to the security of a free State, the right of the people to keep and bear arms shall not be infringed."

When the Second Amendment was written, the memory of the role of citizen-soldiers in the Revolution was still fresh in the memory of the people. In that war, an estimated 17,000 North Carolinians served in the Continental Line or the State Militia. Armed citizens stood against the British Regulars throughout the Revolution; the United States had no standing professional army until long after that war.

The War Between the States

During the Civil War North Carolina furnished some 111,000 troops, nearly all volunteers. The grand total, including reserves, exceeded the voting population of the state at that time. Hampered by the lack of industry for the weapons and other necessities needed during the war, the Confederate Army turned to the people. The State of North Carolina purchased shotguns and rifles from her citizens, and many soldiers carried their own trusted hunting arms to war.

Although early in the war a regular Confederate Army was proposed, this idea was never carried out. Instead, the entire war was fought by the Provisional Army of the Confederate States, with more than half a million citizen-soldiers on the side of the Confederacy.

Thus, as in the Revolution, a war was fought by citizens who had learned their marksmanship in the peacetime sport of hunting.

Do We Need Guns Today?

One does not need to look back a century to find illustrations of the need for a well-armed citizenry. During the crucial time when Britain stood alone against the Nazis, sporting arms were purchased by the thousands to arm the British Home Guard. An almost total restriction on the ownership of guns—rifles, pistols and shotguns—had deprived the British people of their own weapons—and also the knowledge of how to use them.

In Czechoslovakia, firearms registration was required before World War II. Police records of those who had weapons provided invading Germans with a ready means of disarming the people.

The fear of a well-armed citizenry has prompted Communist efforts to obtain firearms registration—the first step toward disarming a people. Can it happen here? It could have in 1943, when the Communist Party was operating openly. Then, in Los Angeles, Communist Party officials appeared before the City Council's public safety committee, favoring the adoption of an ordinance that would require registration of all firearms.

A Nation of Riflemen

There has been a time when the United States was known as a nation of riflemen. Despite the continuing popularity of hunting, only a small percentage of the inductees called for World War II showed familiarity with firearms. The National Rifle Association, long a supporter of the principle of a well-trained and well-armed citizenry, reports the following in a recent editorial:

"More rifle practice by civilians, especially young people, is necessary to improve our national defense. This is the conclusion of a special study conducted by the Department of the Army and reported to Congress on January 16, 1961."

The editorial concludes, "It was his skill with the musket that stood the Minuteman at Concord in such good stead. Our country was won by stout-hearted men with firearms in their hands. It is indeed conceivable that the continued existence of our country again may depend, some day in the future, upon stout-hearted men armed with rifles and with the ability to use them.

continued on next page

That is why we should see to it that we have an adequate program of rifle practice for civilians."

Who Would Be Disarmed?

The leading argument for firearms restrictions is the prevention of crime. True, firearms figure in many cases of premeditated crimes and in many crimes of passion. Would restrictions such as registration reduce the number of such cases?

The criminal who plans a crime involving firearms would find himself hampered very little by restrictive laws. The man who steps outside the law to use firearms in crime isn't going to hestitate to steal such weapons as he needs, any more than he would hesitate to violate laws requiring him to register the arms he already has. The only people affected by firearms registration laws are law-abiding citizens.

What about crimes of passion? Wouldn't there be fewer shootings by people who suddenly become obsessed by a killing rage, if there were fewer firearms handy? Murder can be committed with many weapons other than a rifle, pistol, or shotgun. A man so enraged as to take another's life isn't going to stop simply because a gun isn't available.

What about accidents? Wouldn't there be fewer cases of accidental shooting if there were better control over the use of firearms? Practically all firearms accidents occur during the legitimate use of guns, for hunting or target practice. Many of these accidents happen because the person handling the gun is not accustomed to handling it. Registration wouldn't prevent a single accident, and limiting the use of firearms would simply mean that fewer people using guns for legitimate purposes would be familiar with their firearms.

What's To Be Done?

Several laws are already on the books to take care of the obvious needs in firearms control. Federal laws already control the importing, sale, and records of sale by firearms dealers. In addition, federal laws cover the interstate transportation of stolen firearms and ammunition, the use of firearms by anyone convicted of a crime of violence, and the possession or sale of any firearm on which the serial number has been obliterated.

Local laws forbid the carrying of concealed weapons in most areas. Between state and federal laws, there is ample legal control over the **use** of firearms. And so long as these laws are properly enforced, there is no need for additional regulation concerning the **possession** of firearms.

Recently, President Kennedy made the statement, "Today we need a nation of minute men; citizens who are not only prepared to take up arms, but citizens who regard the preservation of freedom as a basic purpose on their daily life and who are willing to conciously work and sacrifice for that freedom. The cause of liberty, the cause of America, cannot succeed with a lesser effort."

Unarmed and helpless minute men, sportsmen say, hardly would be in a position to take up arms and rally to their country's defense.

Responsibility for training of the hunters of tomorrow rests with the parents of today. Trained hunters are safe hunters.

Wildlife Mana... by th...

by Sam F. Poole

HOW many times in military "lingo" have we heard "do it by the numbers?" This is an expression used to describe an approach to a problem in a logical 1-2-3-4 sequence. It might be added that this is a very efficient method. This "first things-first" attitude has been adopted by the capable military personnel responsible for game management and propagation on the Cherry Point Marine Corps Air Station, located south of New Bern on Highway 70 near Havelock, North Carolina. This body of land is a peninsula of the mainland protruding into the Neuse River.

The game management on this area is now undergoing its initial development in a logical sequence: thinking and planning first, with the development and management always tempered by the thought of improvement for the future.

There is an admitted need here for a game management plan that will be an informative, guiding instrument that can be utilized to insure a sound natural resources conservation program aimed toward sustaining and increasing wildlife. There is also need in the master game plan for strong consideration for the management of forest lands. This plan should be carefully developed in order to serve a dual purpose; forestry management practices should provide for sustained timber production and harvest, and at the same time assure adequate provision for wildlife food and cover.

At the present time there is no full-time professional forester on the area, and there have been no timber sales for the past three years.

Plans for Food and Cover

Plans have been formulated to provide wildlife food and cover through habitat restoration and manipulation.

lumbers

Five hundred acres are scheduled for development. Field work has begun and equipment has been purchased.

Currently a portion of this 500 acres already has been planted with food and cover materials for small and large game. There is a definite need for more adequate winter food, and this need is being logically attacked. Turkey-deer pastures are to be planted in Kentucky 31 fescue, redtop herd grass, and ladino clover. These pastures will also serve the small game of the area.

Small game plantings will consist of dispersed plots of supplemental food and cover. Kobe, Korean, shrub and sericea lespedeza and adjacent plots of annual seed mixture will be established. The ends of runways and the woods-field borders are to be utilized for these small game plots. These provisions for winter food and cover should increase the wildlife populations.

The Natural Habitat

Native plants constitute an important part in the overall carrying capacity for game on Cherry Point. The native habitat is generally good. Along the streams many hardwood bottoms are found that produce acorn mast and hickory nuts. The northern section of the base protruding into the Neuse River consists of marsh and pocosin vegetation. Yellow pine ridges supply another variety of habitat frequented by both large and small game species. All of these excellent native habitats are frequented by game and provide natural food and cover for these denizens of the field and forest.

Wildlife on Cherry Point is a relatively easy crop to produce for it is a product of the land and will respond to good game management principles and produce abundantly.

The game animals found on the area include deer, turkeys, quail, squirrels, rabbits, foxes, raccoons—and all will respond to good management. These animals live and thrive in the supplemental and natural habitats that we have previously discussed.

Enforcement No Problem

Law enforcement is not a serious problem on Cherry Point, for this problem is approached from two angles. The state game laws are enforced by state wildlife protectors, and additional federal laws and regulations are enforced by the chief base game warden, his huntmasters, and eight deputies. Law enforcement, one of the first steps in good game management, is adequately covered by this cooperative approach.

Fire is an extreme danger to the military installation and is controlled by presuppression, detection and suppression.

Capt. D. Q. Lundgren, station game warden, and Gunnery Sgt. C. D. McCoy look at one of the new pastures for deer at Cherry Point Marine Corps Air Station.

There is no trapping allowed on the base for predator control or for any commercial fur bearers. Predator trapping is not necessary unless in confined areas they become out of balance with game species one with the other. Here this is not the case.

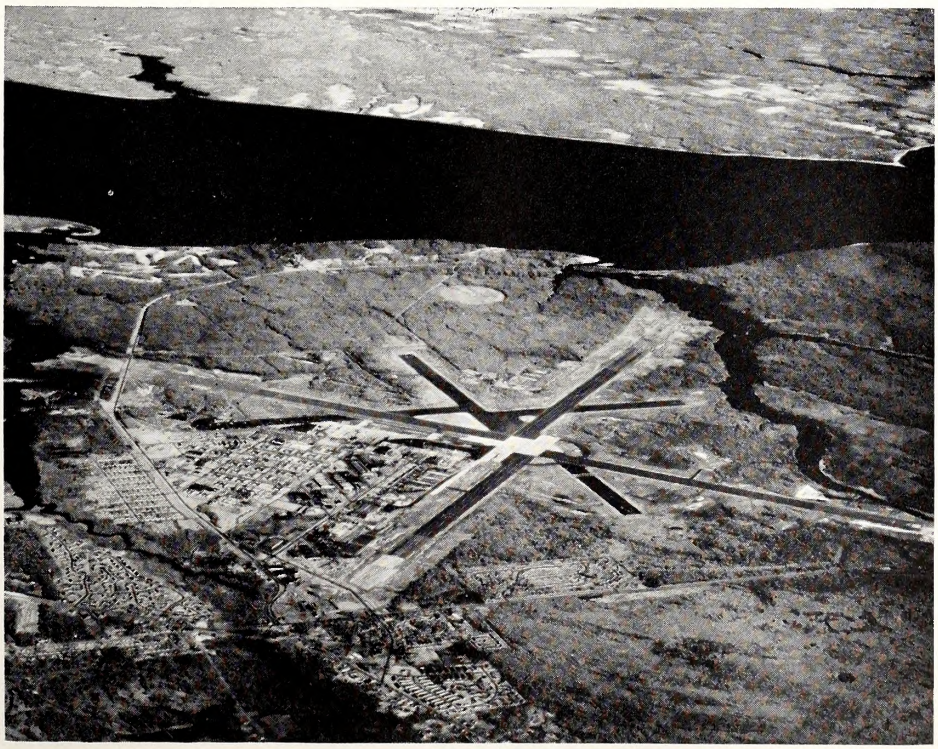
For obvious reasons of security, Cherry Point cannot be used as a hunting ground for everyone. So, by federal and station orders, only military personnel and their dependents attached to Cherry Point units are permitted to hunt here.

Through logical planning, development and education "by the number," the future looks good for this important game-producing Marine base.

Members of the Cherry Point Hunting and Fishing Association inspect a food patch started this year at the air station.

Official U. S. Marine Corps photos

An aerial view of the vast Marine station shows the Neuse River in the distance, with the air field and other facilities in the center. Below is the town of Havelock. Most of the development has been done by the station's hunting and fishing association in the area beyond the field, between the two large creeks on each side.



NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Commission Sets Hunting, Trapping Seasons

The Wildlife Resources Commission met in Raleigh June 8 to establish the 1961-1962 hunting and trapping regulations for North Carolina. This season's rules are essentially the same as last. The Commission had proposed a statewide squirrel season running from October 16 to January 1, but public hearings disclosed that the majority of hunters preferred the dates as now established: eastern counties October 16 - January 1; central counties November 1 - January 15, western counties October 2 - January 15. Statewide bag limit for squirrels will be 8 daily, 16 in possession and 75 for the season.

Tarheels Get National Awards

The American Association for Conservation Information at its annual convention in South Dakota's Black Hills gave an award of merit to the 4-H Clubs of North Carolina for more than 25 years of conservation camps and wildlife conservation projects; to the Long Creek Rifle and Pistol Club for its outstanding program of hunter safety education for youth, and to Charlotte Hilton Green of Raleigh for her lifetime interest and efforts for youth conservation education, author of "Trees of the South," "Birds of the South," and her "Outdoors in Carolina" published for 29 years in the Raleigh News and Observer. The Wildlife Resources Commission won honorable mention in national competition for the outstanding nontechnical bulletin "Wild Turkey in North Carolina."

Conservation Roundup at Fontana

Forty-five delegates from nine states and the District of Columbia met at Fontana Village Resort early in June to discuss conservation matters ranging from the conservation of soils, forests, waters, and wildlife to boating safety and public relations involving the entire field of outdoor recreation.

The idea for holding the "Conservation Roundup" in North Carolina was born when Garth Cate, Tryon, published an article in a major resort magazine pointing up the responsibility of resort operators to the field of resource management. Major O. A. Fetch and Lucile Boyden, Government Services Inc., Fontana, organized the first roundup last year and the second roundup for 1961. A third meeting of this type is tentatively scheduled for Fontana next May 31, June 1 and 2.

Hunting, Combination Hunting-Fishing Licenses Expire

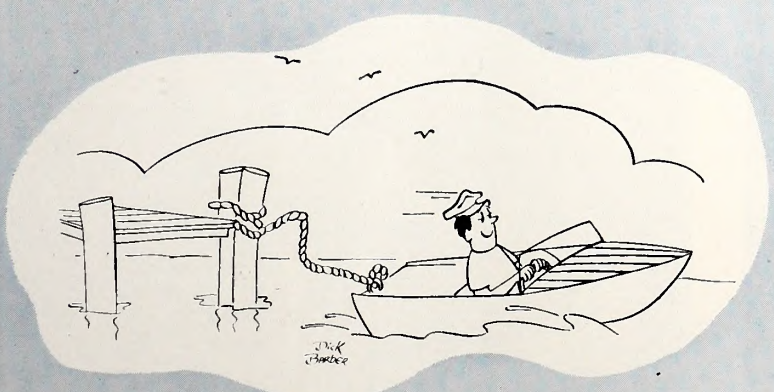
If you have been fishing on a combination hunting-fishing license, that license expires July 31. So also does your 1960 - 1961 hunting license. At press time it was expected that the new licenses would be in the hands of license dealers by July 31 together with copies of the 1961 - 1962 hunting regulations. Fishing licenses are effective from January 1 through December 31.

ON THE LIGHTER SIDE

CARTOONS BY WILLIAM R. BARBER

"Quick, dear! Hand me the net!"

"Hello, Ed? About that fish fry tonight . . ."



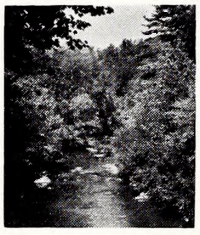
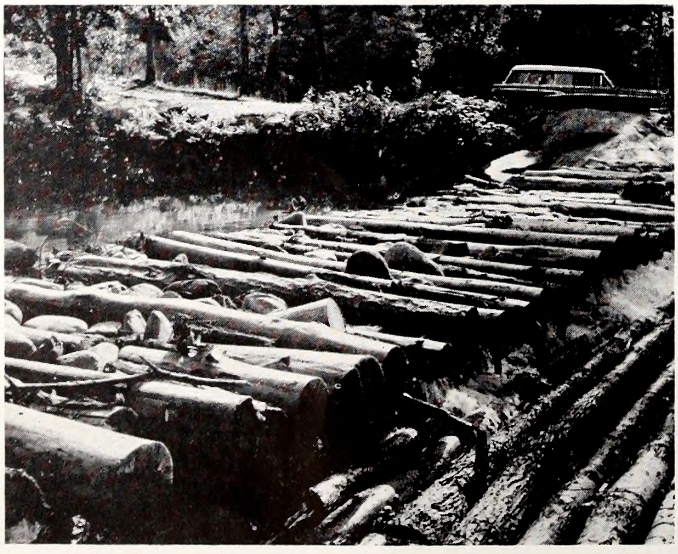
New Day for Fires  Creek

Photo Feature **by Jack Dermid**

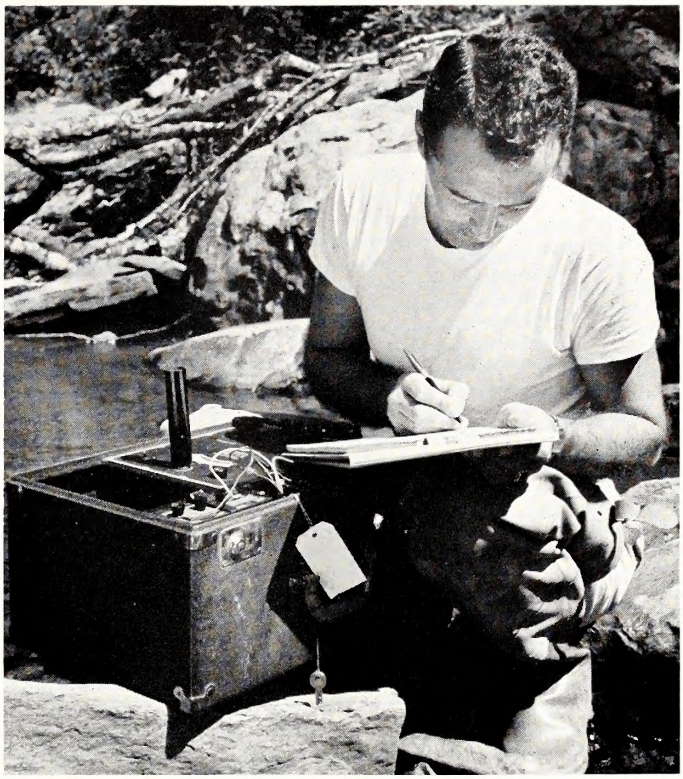
Using scientific techniques, Fish Division biologists destroy the trash fish in Fires Creek. Now trout can grow really big!

Before the application of rotenone, a sturdy barrier dam of logs and rocks was constructed in Fires Creek to prevent the re-entry of unwanted fish species from nearby Hiwassee River.



A Forest Service cabin deep in the Fires Creek Wildlife Management Area served as headquarters for the reclamation crew. Fires Creek is located in Clay County northwest of Hayesville.

Complete data on the rate and volume of stream flow were required so that the application of rotenone could be precisely applied for a complete kill. A salt block was placed in . . .



. . . the water. Downstream at measured checkpoints, a conductivity meter told biologists when the salt arrived, enabling them to calculate current speed and the amount of dilution.

DURING the 1960 trout season, Fires Creek in the Fires Creek Wildlife Management Area was not a stream to brag about. It contained some nice rainbows, and determined anglers sometimes caught their limits.

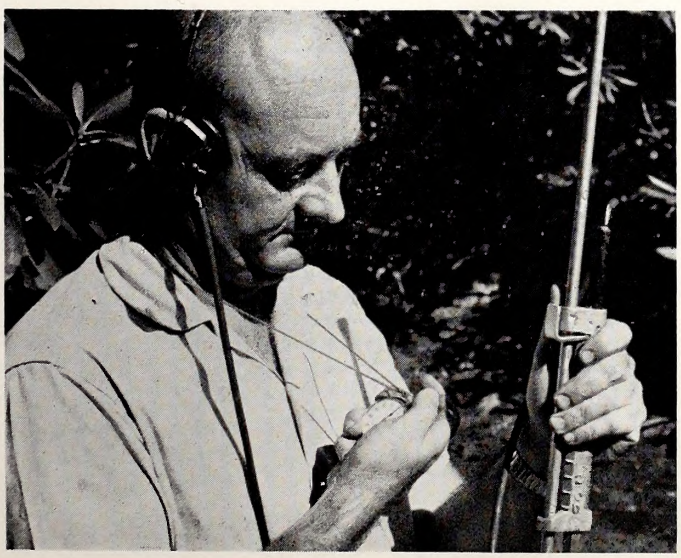
But fishermen had to work hard for their trout, particularly if they used worms for bait. A worm tossed into a hole for a rainbow usually provided dinner for a host of undersized trash fish. They would strip a hook clean before the line could straighten out in the current.

Fires Creek was simply overrun with stone rollers, darters, sculpins, long-nosed dace, stunted rock bass, and more. These fish not only stole the angler's worm, but they competed with trout for natural foods. In fact, their abundance cut the trout carrying capacity of the stream in half.

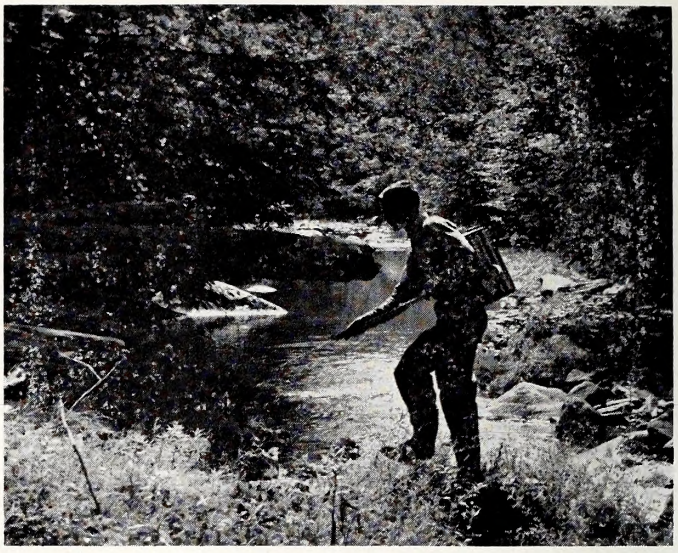
Something had to be done to reduce the trash fish population if trout fishing was to improve, and biologists of the Commission's Fish Division went to work. The first step to reclaim Fires Creek called for stopping the upstream movement of fish from nearby Hiwassee River. In cooperation with the U. S. Forest Service, a barrier dam was constructed inside the management area boundary.

The second step was to remove the trash fish above the barrier. When the 1960 trout season ended, a crew of biologists moved in with modern equipment and know-how to do the job. Under the direction of Lee Tebo, supervisor of fisheries research, they spent three days investigating Fires Creek and effecting a complete kill of fish in an 11-mile section of the stream and its tributaries. The photographs on these pages take

Braden Pillow of the Fish and Wildlife Service assisted in the operation. Earphones attached to flowmeter enabled him to count revolutions-per-minute for water volume calculation.



The rate of rotenone application is also dependent upon water temperature. Careful and complete field notes were taken on all phases of activity to serve as guide for future projects.



To insure as complete a kill as possible, biologists packed rotenone along every foot of the stream, spraying all potholes and seepage springs away from the main current. Tough work!

When all needed data about Fires Creek were obtained, treatment with rotenone began. Drip stations were established on the headwaters of all tributaries and along the main stream.

New Day For Fires Creek

you there and show you how the important mission was accomplished.

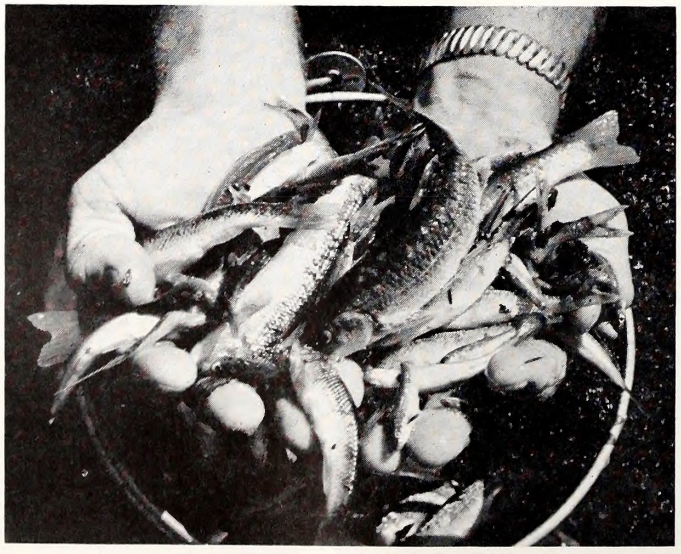
Rotenone, a chemical poison extracted from a South American root, was used to destroy the fish population. A special formulation is used in fish management, and this rotenone should not be confused with those sold as agricultural insecticides. Rotenone constricts the blood capillaries in the gills of fish, and death results from suffocation.

With the barrier dam in place and the trash fish eliminated, the next step was to restock Fires Creek with trout. This was accomplished during late winter when the stream was stocked to capacity with rainbows up to 12 inches long.

When the 1961 trout season opened, anglers returning to Fires Creek found a different stream awaiting them. The clear waters still tumbled through the rugged Clay County terrain, but the life in them had been changed—the fishing improved.

But the best days for Fires Creek are still to come. Give the new trout population time to grow fat on the abundance of natural foods, and Fires Creek will yield some trophies hard to equal anywhere in North Carolina.

A sample of the kill. As anticipated, trash fish were killed by the thousands. Species included stone rollers, sculpins, stunted rock and smallmouth bass, long-nosed dace and suckers.



Rainbows. Some nice trout were victims of the rotenone, but none collected could be listed as whoppers. The trash fish greatly outnumbered the trout, yielded more pounds per acre.

The rotenone was effective. A random pickup of fish was made along the entire stream. Sample areas were blocked off with nets and all the fish collected for quantitative measurement.

Fires Creek has been restocked with trout and is open to fishing this summer under management area regulations. Fishing has improved and its prospects for the future are promising.

The fish gathered from the sample areas were counted, weighed, and identified. The operation produced valuable scientific information regarding the fish populations of a trout stream.

The Shark That Didn't Get Away

by Jim Lee

A fisherman and a shark slugged it out for two hours at Wrightsville Beach recently. The angler was the winner of the third and final round, but the shark was decidely leading in the first two.

The match was fought in mid-May. C. K. McNiell, a regular at Johnnie Mercer's pier, baited up for king mackerel. He used a live bluefish suspended from a float drifting beyond the end of the pier. Instead of a king mackerel, however, a mackerel shark struck at 8:00 a.m.

McNiell knew when he first felt the pull of his adversary that he was in for a long fight. Later estimated at 110 pounds, the shark was hooked on light tackle carrying 15-pound test line.

C. K. McNiell stands with rod bent by the pull of a 110-pound mackerel shark that he fought to a finish after two hours.

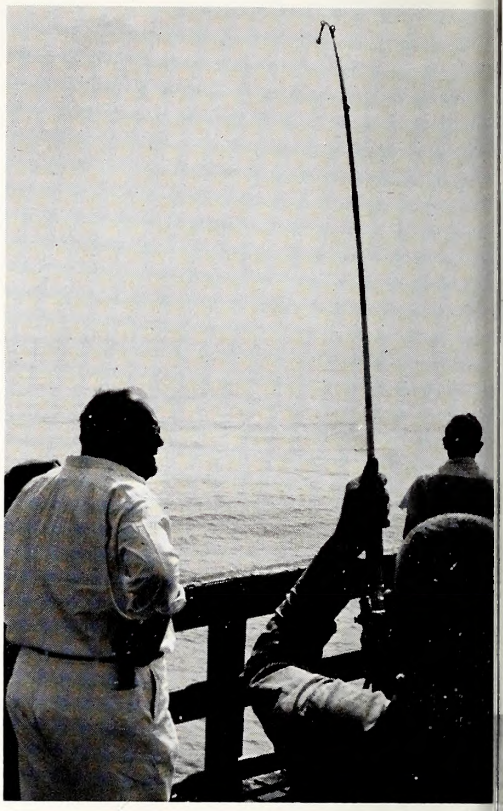
Round One lasted about an hour. With his slender rod bent almost double, McNiell played the heavy monster back and forth across the end of the pier. During the first round McNiell wasn't sure whether he had a shark or a coveted cobia. Earlier another fisherman had landed a whopping 65-pound cobia, and McNiell couldn't tell from the erect dorsal fin just what he had.

Round One ended when McNiell finally worked the shark into the surf. The shark claimed this one, because he came ashore on the wrong side of a jetty that parallels the pier some distance to the south.

Fearing that the fish would be lost if the delicate monofilament line scraped against the jetty, McNiell let the shark work his way back out again. Both fisherman and fish were tired by now, and both took an intermission while they moved toward the end of the 1000-foot pier.

Round Two Belonged to the Shark

Round Two was considerably shorter, but also more dramatic. McNiell continued to play the shark for nearly half an hour before working him toward the surf again. The shark came within a few feet of the jetty, but this time on the same side as the pier. Eldredge Jenkins, one of the younger pier employees, plunged into the surf with a gaff.



Ed Newkirk, left, gives advice to the fisherman during the long struggle. McNiell walked more than a mile fighting the fish.

Jenkins, wary of the shark's teeth and abrasive hide, spent several tense minutes trying to snag the fish with the gaff. Each time, however, the shark's tough skin deflected the hook.

By now McNiell was on the shore end of the pier, working carefully to avoid snagging his line on telephone wires leading up to the elevated pier. Finally, he handed the rod to Ed Newkirk, another pier employee, and dashed down to the surf.

McNiell discarded only his shoes. Wading into the surf in his stocking feet the exhausted fisherman caught the rod as Newkirk dropped it to him from 30 feet above. By now the shark had drifted down almost beside the barnacle-encrusted pilings of the pier.

Suddenly a wave brought the shark against a piling, and the line snapped. Round Two belonged to the shark, but after an hour and a half of fighting McNiell's skill the shark was too tired to enjoy his victory. McNiell was too tired to care.

McNiell and the Shark Met Again

McNiell wearily climbed back up to the pier. "I'm almost glad he got away," he said a minute later. "A fight like this takes too much out of a man." Just

then a yell from out on the pier sent McNiell running, and Round Three was on.

The shark had drifted out again, still carrying some 75 feet of line and the hook firmly embedded in his mouth. Another fisherman had seen the line and had cast toward it with a spinner. The treble hook was snarled in the drifting line, and McNeill and the shark met again.

McNiell tied the free end of the line back onto his reel and began to play the almost dead weight. Back around the end of the pier and back to the beach again.

Round Three ended when Eldredge Jenkins gingerly waded into the surf again, this time armed with a longer and sharper gaff. After several glancing stabs of the gaff, Jenkins snagged the heavy-weight with the hook.

Then the shark proved that he wasn't completely finished by threshing with both head and tail at Jenkins' unprotected legs. Jenkins danced back and forth dodging the sharp teeth and rasping tail, at last beaching the prize with the help of another bare-legged spectator. Both Jenkins and his helper are in their teens.

Too Tired to Look at His Prize

McNiell was too tired to even come down to look at his prize. He just leaned against a counter in the pier tackle shop, breathing heavily.

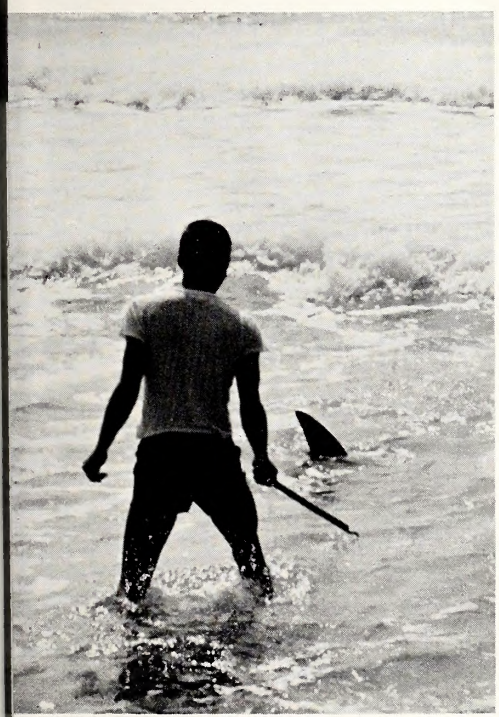
McNiell is a security officer at Sunny Point Army Terminal across the Cape Fear near Southport. After he left for his day's work, Newkirk commented, "That's a fishing family. Last year McNiell's son Bobby, then 13 and weighing about 65 pounds, fought a tarpon weighing well over 100 pounds for more than five hours."

"Bobby finally lost the tarpon when his wire tackle parted," he explained.

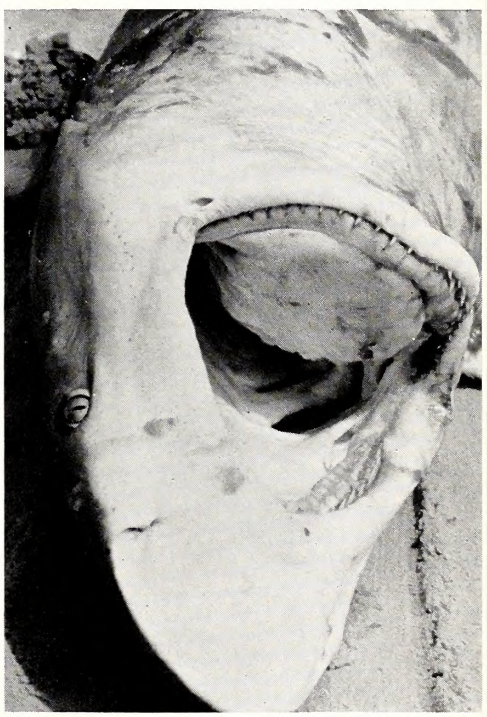
Newkirk added that sharks aren't welcome at fishing piers, but that the mackerel shark caught by McNiell isn't a dangerous species except when cornered. "We still don't want them around," he said, "since they spoil fishing for other species and also frighten swimmers on the beach."

Meanwhile a crowd had gathered around the lifeless shark on the beach. Some of the more daring souls were peering into the shark's mouth, looking at the three rows of teeth that line each jaw.

McNiell was on his way to work, arms and back muscles aching from the almost constant strain of the shark's weight on his light tackle. During the two-hour fight he had walked more than a mile while holding the rod that ultimately brought in the shark.



Eldredge Jenkins wades into the surf armed only with a short gaff. The shark's dorsal fin is visible in the water at right.



Three rows of triangular teeth line each jaw of the mackerel shark's mouth. The shark snapped at McNiell's live bluefish.

End of the fight came when Jenkins and a bare-legged spectator gaffed the shark and hauled him ashore through the surf.

The Skipper

Conducted by Duane Raver

IF you are a boatman, this is designed to scare you; not to death, but to life. During this month, six people will be killed in boating accidents on Tarheel waters. This deadly prediction is based on a rough 1960 July, which saw seven persons die. No one likes to foretell tragedy, and the only purpose in relating these grim statistics is to make you, the skipper, think and act in a safer manner on the water this season.

In a sense, it would be helpful if we could point to one major cause of boating accidents, or even two or three. Of course we can show by statistics who is most apt to have trouble afloat and even where and in what way. But this still tells us only in a superficial way what to watch out for.

Evinrude

It takes careful attention to every detail if your day on the water is to be a safe, enjoyable one. Will you return?

So far, we simply don't have the complete answer to boating accident prevention. Actually we may even pursue the wrong road in our eagerness to find the culprit. And in this haste we may neglect several factors which in reality contribute heavily to fatal accidents. In the final analysis, no one on the water, regardless of boat type, condition, or horsepower, is immune from accident. It's no idle question to ask, "Will you be around next year to read the boating accident statistics?"

Back to Fundamentals

Do you want to learn boating? Now really, do you want to know how to handle your craft in an expert manner, safely under all conditions? Your answers no doubt range from "I already know how to handle my boat," to a quick turn of this page.

Boat handling is alarmingly simple—or at least so it appears to many beginners. This type of thinking has resulted in many mishaps afloat. So, perhaps it's back to fundamentals for the seasoned skipper, and to start here for the novice boatman.

Although most of us will be operating power boats, a basic knowledge of rowing, canoeing, and paddling will help impart a great deal of "groundwork" knowhow for the motorboater. In other words, the place to start learning outboard

Jim Lee

Good seamanship may begin right here. Most of the fundamentals of safe boat handling can be learned in paddle or rowing craft. These boys are using a flat-bottomed, rowboat.

(or bigger) handling may be in smaller row boat. Call it basic seamanship or whatever, it still provides a good footing for later work.

The sailboater will tell you that there is no substitute for the "feel" of his craft. You are much more in touch with your boat than with power boats, and it is an excellent way to learn basic maneuvers. True, it is much different than mechanically operated vessels, but perhaps we all should serve an apprenticeship aboard a sailboat before graduating to power.

Fundamentals which make for easier if not safer boating include rope handling, knot tying, chart reading, boat maintenance, and so on. Your education as a skipper is far from complete if it stops with pushing the throttle of an outboard. The conscientious marine dealer will make a real effort to see that you are at least aware of these things when you buy your boat; but even the best of them can't give you a full course in boat handling.

Car-top Boats

Although the hull that will take a 50-horsepower outboard is still in great demand, a goodly group of fishermen, campers, hunters, and such are looking for a light boat that can be easily hoisted on top of the famliy car and carried into remote areas. Some who seek this portable craft, settle for a compromise and often end up with a tipsy, unsafe one.

A light boat need not be an unstable one. Design is im-

portant, and also how the craft balances with a load. Weight obviously is important but certainly not to the exclusion of safety. Selection boils down to trying out several of good manufacture and picking the one that suits your needs best. Bear in mind the motor limitations of these car-top craft. Usually a five-horse kicker is plenty and often a three will do the job. Be mighty careful about over-powering the little vessels.

A 12-footer comfortably handles two men and a limited amount of gear. If you're fishing, two are plenty anyway. More than normal care should be taken in choppy water, going over big wakes, and such as that. Remember these craft are not made to conquer big water. Handle with care.

Evinrude

For fishing or hunting back off the beaten path, there is no substitute for the light car-top type boat. Pick one that has good design and keeps safety in mind. Don't over-power it.

"Safe Skippers, Ahoy!"

This is the title of a little fold-out sheet that is sub-titled "A Beginners Guide to Small Craft Boating." Designed as a digested pleasure boating course, it is distributed by the Allstate Insurance Companies in the interest of public safety. If every boater, skier, and water sportsman would read and follow this pocket-size guide's suggestions, boating accidents would drop sharply. It's that simple, skipper.

Life Preservers

Going over boating accident reports isn't a pleasant pastime, but if we are to learn anything from the mistakes of others, it is a necessary one. One accident was noted that occurred in late April of this year that points up the value of life preservers.

In this case, the operator of the boat involved was drowned. Both occupants of the boat were thrown out as the craft apparently swerved for some unexplanable reason. One, however, managed to hang onto a partially filled gas can found floating. The point of the whole thing is that **in the boat** which did not turn over, where at least two life preservers, and incidentally, a bucket of minnows—none of which were spilled.

The fact that the surviving occupant happened on to the gas can and stayed afloat until rescued showed presence of mind and a good bit of luck. But perhaps both could haye been saved if they had been **wearing** life jackets. Why is it that people have to be pleaded with to save their own lives?

Evinrude

Ski belts aren't legal equipment in boats. They are fine for the skier and the experts say that they are good insurance.

Watch That Wake

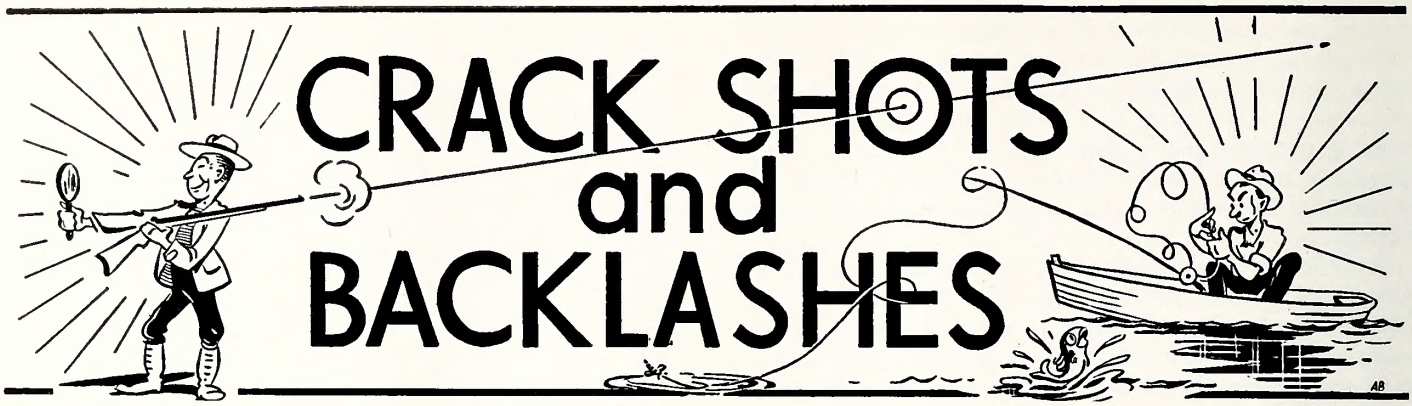
Why does a boat capsize? This actually is almost an unanswerable question because of the varying conditions under which the mishap occurs. At times it very likely is the fault of the boat, either design or construction or some other mechanical factor. Usually, though, it was the way in which the craft was used. For example, there is a section of water known as the "Mouse Trap" by boatmen. It is created by the wakes of two parallel, on-coming boats. Where these wakes meet is a deceptive pocket of water. Watch it.

A well balanced boat loaded properly and powered in safe manner can become a death trap in water conditions that are unsafe. The simple act of crossing another boat's wake can be a treacherous operation and should be done with extreme care. Large displacement boats create swelling, big wakes while the lighter, planing hulls, even at high speeds, throw surprising little wakes. Be careful of either, however. Never approach a big wake parallel to it, but rather hit it at almost right angles. Cut your speed some but maintain power so that you can control sliding.

Wakes have a nasty habit of slipping up on the boatman, so watch for them particularly if there are several other boats in the area. A "following" wake, one that approaches your craft from the stern, can be tricky too. Swampings have occurred from taking water over the stern.

National Safe Boating Week

The week of July 2, 1961, has been designated by President Kennedy as "Safe Boating Week." We get rather immune to all the "weeks" that are proclaimed, but this is one that makes real good sense. Help make it a success and then extend it throughout the remainder of the boating season.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

To give proper recognition to individuals and organizations that make outstanding educational and informational contributions to the conservation of North Carolina's natural resources, the N. C. Wildlife Federation, backed by the Sears Roebuck Foundation, has organized a program to give awards to deserving groups and individuals. The Federation believes that greater knowledge of soils, forests, minerals, waters and wildlife will bring about a better understanding of these resources and greater willingness of the general public to support their active conservation.

The awards will be made in three categories: *Local, Regional,* and *Governor's State Awards.* This year's top awards will be made at the Federation's annual meeting to be held in Greensboro next November.

State, regional and local awards will be made in these categories:

Soils Conservation, Forestry Conservation, Water Conservation, Conservation Writer, Boy Scout Conservationist, FFA Conservationist, and 4-H Conservationist. A Club Conservation Award will go to the outstanding affiliate of the N. C. Wildlife Federation, and a Protector of the Year Award will be given to the outstanding wildlife protector in the state. A State Governor's Award will go to the Conservationist of the Year, and another to the Junior Conservationist of the Year.

Winners of State Awards will receive a gold medal, a Governor's certificate and a trophy. Regional winners will receive a gold medal, a certificate and a trophy. Local winners will receive a certificate.

Competition for this year's awards will end September 30, and subsequently competition will be based on accomplishments during a calendar year from October 1 through September 30 each year.

Career conservationists, as well as outdoor writers and persons individually active in conservation activity will be eligible for the awards. Communications regarding the awards should be addressed to: North Carolina Wildlife Federation, Awards Committee, Box 948, Rocky Mount, N. C.

P. K. Gravely, Rocky Mount (left), and Dr. George Heinitsh, Southern Pines (center), are shown presenting the details of the North Carolina Wildlife Federation's awards program to Governor Terry Sanford. Gravely is chairman of the awards program, and Dr. Heinitsh is president of the Wildlife Federation.

Fulvous Tree Duck?

The fulvous tree duck pictured in last April's issue caused considerable comment among bird watchers and nature lovers. This interesting observation comes from Mrs. R. C. Nichols of Spencer. If the birds she describes nest in the same area this year *Wildlife* will cover the subject pictorially.

DEAR SIRS: Regarding the fulvous tree duck pictured in this month's (April) Wildlife, does this bird have webbed feet? From the photograph I can't be sure. Last summer we had a pair nest back of our cabin, Rowan County, and could not identify them. They looked just like the bird pictured, except I am sure ours did not have webbed feet. They hatched three baby birds but disappeared before they

were old enough to leave the nest. What happened I don't know, since we were only there on the weekends.

There is a small pond near the cabin where the birds were seen often. The entire family left after the younger ones were a few months old. No one in our neighborhood had ever seen the species before. These birds had very long, thin, black legs, long toes, and climbed like a woodpecker. Their necks were extremely long, especially when stretched out. The drake (if they were ducks), had more color than the female—greenish wings and dark gray or brown body. He had a loud, coarse call, much rougher than a crow's call and would try to lead you away from the nest, which was only a few sticks crossed on some limbs in a pine tree. It was so small we never understood how the three large babies possibly stayed in it. They looked like huge puffs of gray fur climbing along the limbs.

The egg shells under the nest were light blue and perhaps a little larger than bantams eggs. The female, smaller than the male, was browner than green and would sit perfectly still for hours, her long neck stretched out looking exactly like another pine limb. We enjoyed watching them and hope they will return this spring.

Due to our inability to identify them we could not learn anything about their nesting habits. I would appreciate any information you can give me and am enclosing a stamped self addressed envelope if you care to reply. MRS. R. C. NICHOLS, SPENCER.

P.S.

Could there possibly be any bald eagles in our section, Rowan County, Morgan Township, a few miles from High Rock Dam? I saw such a large nest, large enough that a raccoon was curled up asleep in it, and I have been wondering what kind of bird built that large nest; crows, perhaps? The nest was made of crossed sticks and the largest I've ever seen.

What call has the eagle?

From the description these birds were apparently green herons, close relatives of the great blue heron and others in the heron family such as the black-crown night heron.

As to eagles, there is a possibility that bald eagles nest near High Rock. It is more likely, however that the nest would be that of an osprey, sometimes called fish hawk. Ospreys use the same nest year after year, piling up more nesting materials each year.

Take a boy fishing! That's a theme that we repeat every year, because we sincerely believe that you will gain more satisfaction—and the boy will gain more inspiration—than in any other activity a father and son can share between themselves.

The call of the eagle is a loud, piercing, blood-curdling screech. Mlle. Lucretia Plymph says that when she lived near a military reservation she could hear the eagle scream every time the GIs got paid . . .

Personal note: A cute little blonde (four-year-old) was watching me clean the bird bath.

"Whatchadoing?"

"I'm cleaning the bird bath."

When I finished she waited around a while, then said, "Well, when are you going to bathe them?"

Accolade

DEAR SIRS: The North Carolina Wildlife Resources Commission not only has competent widlife protectors but at least one of them is also proficient at writing. I'm referring to "A Moment of Thought" by John Kennedy in the May issue. This realistic vignette is a timely adjunct to the fine cover by artist Bill Ballard. (MISS) ANNE MARIS, HILLSBORO.

Thank you. Protector Kennedy (no relation to JFK) writes a weekly column for several papers in his home area, Pender County.

Meeeeee—YOW!

DEAR SIRS: Everywhere I have hunted or fished any time of the year, I have either seen a house cat or a track where one has been. These cats are hunting the year around without license, and I think that the owners of any cat should pay at least two or three dollars a cat tax; or to be made to kill their cats. I think that a cat destroys more game than any average hunter. I have seen as many as three young rabbits at one time in my neighbor's yard that one of his cats brought up. That is just an example. I have seen where cats have caught growing quail on the roost. So please give this a thought. and I think that 99 percent of the hunters will agree with me. It will get some of the cats out of the country and to me that is getting some all-year hunters out of the way.

I believe that the cats and foxes destroy at least one-third of the rabbits and quail each year in Catawba County before opening season. W. N. LINEBERGER, SHERRILLS FORD.

It would be hard to say which is the more controversial animal, the feral housecat or the fox. Most hunters agree that cats do con-

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PROTECTOR OF THE MONTH

Charles H. Boring

The Macon County Wildlife Protector, Charles H. Boring, was born in Atlanta, Georgia on October 30, 1923. He is a graduate of Miami Senior High School in Miami, Florida and Embry Riddle School of Aviation in Miami with a diploma in sheet metal work. Charles is now taking a correspondence course in American Law and Procedure from LaSalle Extension University, Chicago, Illinois.

Charles served five years in the United States Navy in the Pacific and Atlantic Theaters. He was employed as a wildlife protector February 1, 1955. He has attended four training schools for wildlife protectors at the Institute of Government in Chapel Hill. Prior to his employment with the North Carolina Wildlife Resources Commission, he held a position with Pan American Airways in Miami, Florida.

Charles is a member of Woodmen of the World; N. C. State Employees' Association and an Instructor of Hunter Safety Education for the North Carolina Wildlife Commission and the N. R. A. He is married to the former Christine Clemons of Miami, Florida and they have three children. The Boring reside in Franklin, North Carolina.

DIVISION ENFORCEMENT RECORD FOR APRIL, 1961

HUNTING & FISHING:	
Persons checked	43,138
Total prosecutions	477
Total convictions	467
Total cases not guilty	3
Total cases nol prossed	77
Total cases dismissed	0
Total fines collected	$1,513.70
Total costs collected	$3,605.10
BOATING:	
Boats checked	2,854
Total prosecutions	128
Total convictions	125
Total cases not guilty	2
Total cases nol prossed	1
Total fines collected	$617.50
Total costs collected	$883.45

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

CRAVEN COUNTY WILDLIFE PROTECTOR, J. W. MASON DROWNED IN ACCIDENT

J. W. Mason, Craven County wildlife protector since May 1, 1959, was drowned in a boating accident on the Trent River near New Bern on May 12. He was off duty at the time, on a fishing trip with the Rev. Frank Boger of Bessemer City who was also drowned.

The accident apparently occurred when the small fishing boat struck a buoy in the river. There were no witnesses.

Mason joined the Widlife Commission staff in August, 1958, as a trainee in District 2. He was a graduate of the 1957 Wildlife Protectors' Training School at Chapel Hill.

The protector was a native of Johnston County, and a graduate of Meadow High School in 1947.

He is survived by his wife, Dorothy, and three sons, Larry, Danny, and Michael.

Mason was highly regarded by his fellow workers and by the sportsmen of Craven County. Wildlife Commission executive director Clyde P. Patton said, "We all mourn the loss of this promising young man. His absence will be keenly felt by his co-workers and all his friends."

Mason will be succeeded in Craven County by John B. Willis of Oriental, District 2 trainee.

siderable damage to wild game, but when you mention the subject to cat lovers an argument usually ensues.

Handed down from English common law, traditionally and legally in this country, cats are not property and therefore cannot be licensed. The tenet that people don't own cats—cats own people has a valid legal basis. Although feline household pets do prey on songbirds and backyard rabbits, most cat predation on wild game is done by housecats that have gone wild. These cats are almost invariably the result of chicken-hearted but cruel attitudes of people. Instead of disposing of unwanted kittens humanely, or turning them over to an animal welfare organization, people take them out in the country and turn them loose. The abandoned kitty either starves or becomes a year-around hunter.

As in most of the ills of wildlife conservation and management, people are to blame.

Bird Feeding

DEAR SIRS: As a recent subscriber to your publication—July, 1960—my wife and I have been reading the articles, and letters too, with interest. As lovers of all wildlife, we are concerned with their welfare and do what we can to help when food is scarce; particularly with our feathered friends.

We moved here from Philadelphia when I retired in 1959, and set out our feeding station, as was our custom, that fall, and after the usual waiting period the birds began to come in. We scattered feed also in areas away from the house for the more timid songsters. We were well rewarded with visitors during the fall and winter, and when the snow came, they brought their friends.

Several tiny shrews, looking more like fur-covered beetles, ate the crumbs under the feeder. Several white-throats scratched those little mites feeding; but kept at a respectful distance.

We were away over the holidays this winter, so we didn't start the feeding until our return. We didn't want to start them coming, and then let them down for two or three weeks. When we went to purchase 25 pounds of scratch feed we were surprised to hear the storekeeper say "you must be expecting a lot of snow, you

Wildlife PRODUCES for NORTH CAROLINA

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PARK BEARS ARE WILD

Although the bears in the Great Smoky Mountains National Park often seem friendly enough to pet, the sign on the right is a grim reminder that they are wild animals and can be dangerous if approached too closely or offered food. When the sign was photographed at the Cherokee entrance in October of 1960, 15 park visitors had been injured by bears during the season. This represents a tremendous increase over 1959 when only 2 persons were injured.

The bears are in the Park to watch and enjoy—not to play with!

---

should put the feed out only when there is snow on the ground." Isn't it true that natural food for the wild birds is in short supply during the winter and that supplementing it is important?

We keep suet available, and each fall establish a good sized brush pile in the back to provide shelter and protection. This has paid off in many ways—not the least of which is a decrease in the insect population. These latter may classify as wildlife, but we're "agin' em!" GEORGE M. HOFFMANN, BRYSON CITY.

Successful Fisherman

DEAR SIRS: There was an article in the January issue requesting some letters from subscribers. So I am attempting to write one.

Last year you had an article on spin fishing, out at sea, trolling. Last November my friend and I were fishing off Camp Lejeune on a chartered boat, Rhonda Faye, out of Sneeds Ferry. I always carry several different rods and reels along, so in compliance with your suggestion, I took my 302 Mitchell spinner with a 15 lb. Mon. line. I was getting some long casts right into a school of big bluefish averaging better than two pounds. I call this the finest blues I have seen in about ten years.

I was enjoying myself so much I didn't notice my buddy. I looked over at him and he had set up his rod in the rail socket. I asked him what was wrong, why he wasn't fishing. He replied "when you get through casting all over the ocean, I may try it again!" I put up the spinner, got my Penn Peerless No. 9 and a 5½ lb. Longfellow boat rod using 30 lb. test dacron line. (I like dacron as it doesn't stretch and is not as large in diameter as linen—thereby giving your rod more line capacity to play the big ones with). My partner had shook off his long face by this time and we slayed those big blues, catching 97 and that's a nice catch anytime you do it.

We lost the school of blue, but found a nice wad of whiting. You can't drop anchor in this area on account of a very rocky bottom. We put over a buoy and drift fished until we got tired, catching nearly two hundred fine whiting. They averaged a pound or better, and I call that good mullet fishing, eh?

My buddy still curses me about using that spinner, but it was worth it. I am sure he will take his spinner next time!

Now that the season is over we are enjoying the fish we caught on that trip. He put his in deep freeze, and I salted mine down. When he wants salt fish, I give them to him, and if I want frozen ones, he furnishes them. Anyone who has not tried salted whiting, should do so. They are delicious.

Dress the fish ready to cook and put into an earthen jar. Put down one layer of ice cream salt covering the fish. Keep adding layers of fish and salt until the jar is full. When you feel like eating a whole heap of good fish, just take out of the jar the fish you want and soak them in fresh water for eight to ten hours. Don't kid yourself buddy, that's good eating! Don't put any water in the jar when you pack the fish. They have enough water in them to make a brine.

A pot of grits or South Carolina ice cream (a short name for grits), a pot of coffee (black), a hunk of butter or oleo, and a wad of whiting fried in Mazola oil, "Oh Boy" I'm hungry now and am going right out and put some to soak for breakfast. If you have a good feeling about 10:00 o'clock tomorrow morning, you'll know I was thinking about you while eating salt whiting. I am a retired N. C. State Highway Commission engineer, and this is why I can wait until 10:00 a.m. to eat breakfast.

What was the number of that Langley spinning reel you wrote about last year?

Keep up the good work on Wildlife Magazine. I love this little publication. It is always full of good reading. BOB BROWN, CHARLOTTE.

Use this blank to subscribe NOW—$ .50 a year
$1.00 for two years. No stamps, please

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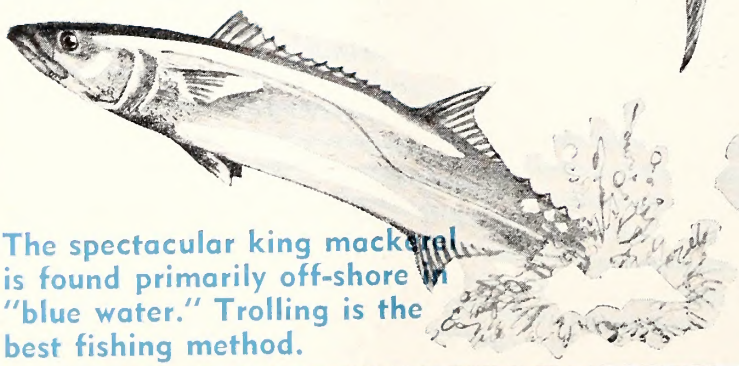
midsummer SALT WATER FAVORITES

The moody bluefish furnishes the pier angler and the troller with fine July sport.

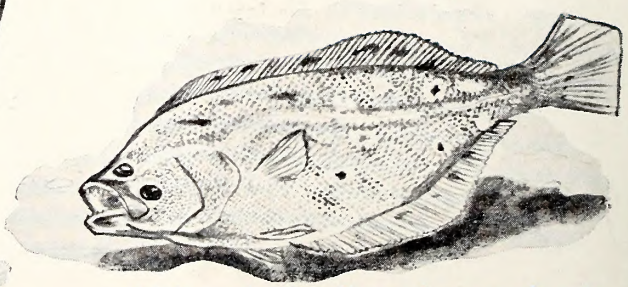
Primarily a bottom feeder, the croaker is a target of the summer pier fisherman.

The cobia ("crab-eater") moves into the sounds to give the still-fisherman and troller plenty of light-tackle fun.

A joy to the troller, the Spanish mackerel makes many a salt water trip successful.



The spectacular king mackerel is found primarily off-shore in "blue water." Trolling is the best fishing method.



Although the flounder won't win any beauty contests, on the table he is second to none.

PRINTED BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

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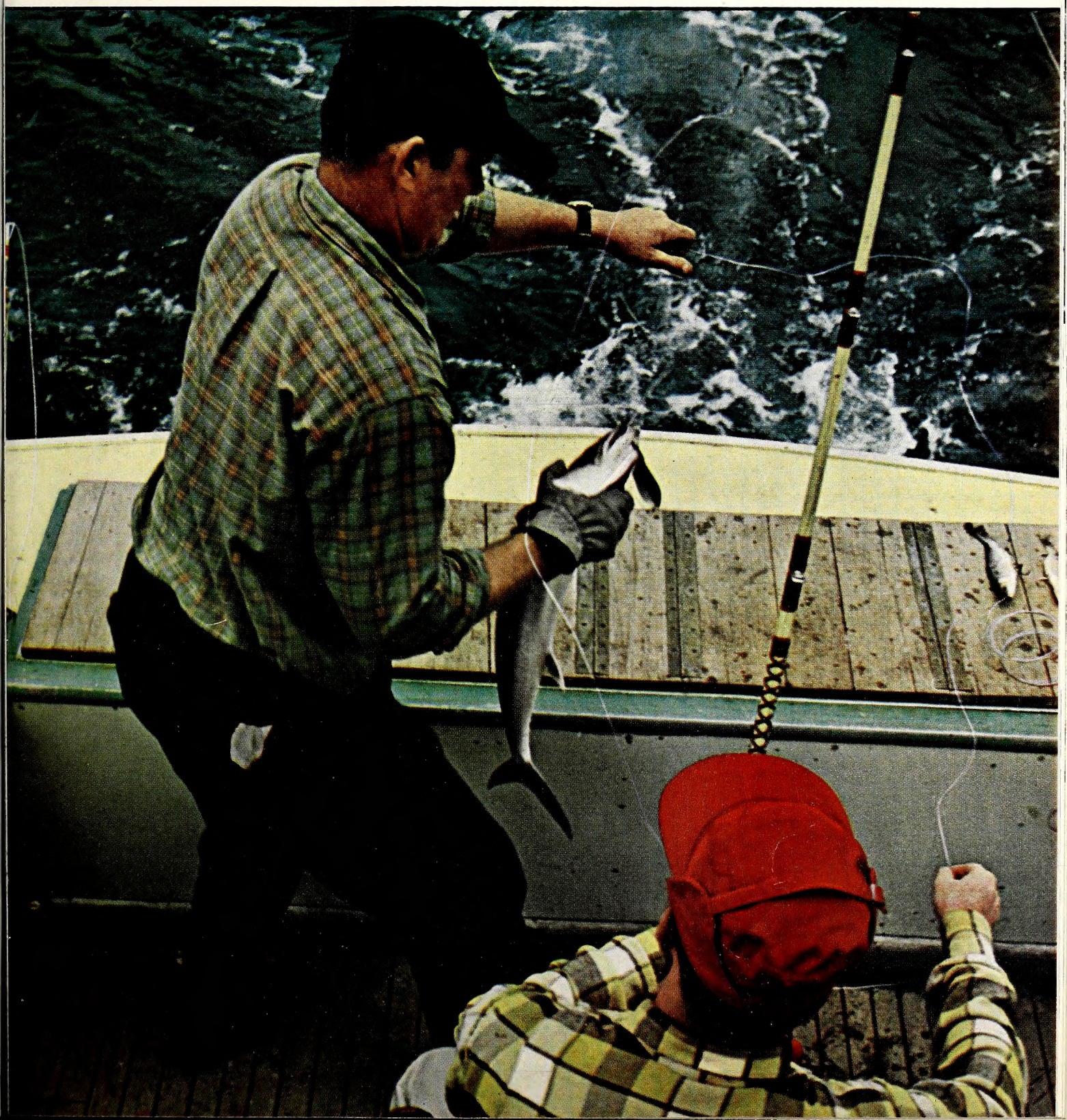
august 1961



BEST THINGS OF THIS WORLD

All those who love Nature she loves in return, and will richly reward, not perhaps with the good things, as they are commonly called, but the best things, of this world—not with money and titles, horses and carriages, but with bright happy thoughts, contentment and peace of mind—John Lubbock.

The scene is Linville Gorge from an overlook just below Linville Falls. Linville Gorge has been designated as a Wild Area by the National Forest Service and will be preserved in its natural condition for all to enjoy. Turn to page 7 for a feature on the preservation of wilderness.

Jack Dermid

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

TERRY SANFORD
Governor

North Carolina Wildlife Resources Commission

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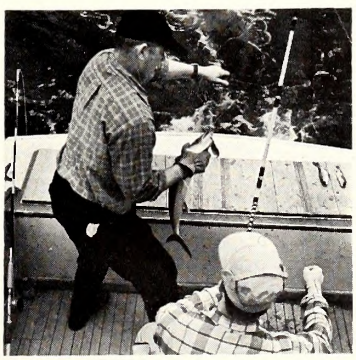

An exciting moment in saltwater fishing as the first king mackerel of the trip comes over the stern of the Pyramus, trolling over the New Hanover Artificial Fishing Reef some eight miles offshore from Wrightsville Beach. August is one of the peak months for offshore fishing, and you never know when the reel begins to sing whether you have a little Spanish mackerel or a trophy blue marlin. The lucky angler shown here was Jim Hardie, and the mate handling the fish was L. T. Davis, who shares the Pyramus with Capt. John Craig. Color photograph by Jim Lee.

Wildlife In North Carolina recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

The Big River

by Rod Amundson

Photos by Jack Dermid

Here is the fascinating story of the Gulf Stream and how this tremendous river in the sea affects Tarheel coastal fishing.

IF you think of several hundred Mississippi Rivers side by side, a mile deep and moving at a speed of three knots, you get a fair picture of the Gulf Stream. You would need a globe to get an idea of the vastness of this great current and to visualize the planetary forces that bring it about. Although there are larger currents in the Pacific, such as the Humbolt Current on which the Kon Tiki drifted from America to Polynesia, none is as clearly defined as the Gulf Stream.

Literally, the Gulf Stream is a huge current of warm water heated at the equator and moving westward toward the north coast of South America. Before the Panamanian Isthmus rose from the sea, this current probably moved westward into the Pacific. Now it turns toward the northeast into the Gulf of Mexico and through the Florida Straits where it goes back into the Atlantic as the Gulf Stream per se.

Course

Many people believe the Gulf Stream has a favorable effect on the climate of the eastern seaboard at least as far north as Virginia. Actually, this effect is slight. The edge of the Stream approaches to ten miles off the coast at Miami, and about ten to twenty miles off Cape Hatteras. There may be some modulation of the climate at these points, but generally the weather of the United States moves from southwest to northeast, and warmth from the Stream would logically move toward the northeast.

Off Hatteras, the Gulf Stream moves northeastward toward the British Isles and into the North Sea where it has an extremely significant effect on the

weather of western and northern Europe. Part of the Stream turns southward along the western coast of Europe, thence toward the equator. Here it is warmed again as it deflects westward, and the cycle is repeated.

Even though the Gulf Stream has little effect on our weather, it is of tremendous importance to our fishing. It is probably responsible for the beautiful sculpture of the contours or cusps of the Carolina coast.

Shaping the Carolina Coast

A look at a map will show that there are three sweeping inward curves of the coastline. The first is the curve from Hatteras to Cape Lookout; the second from Cape Lookout to Cape Fear, and the third from Cape Fear to Cape Romain on the South Carolina coast.

There are conflicting opinions as to how these contours are formed. One school of thought contends that three vast whirlpools are formed between the edge of the Gulf Stream and the coast in the manner of three small cog wheels moving counter clockwise to the clockwise motion of the Stream. This is at least a logical theory, but such currents have not yet been closely charted. It is in this area, however, between the edge of the streams and the coast, that lies one of the important sport and commercial fishing grounds in the world.

Before discussing the effect of the Gulf Stream on our fishing, a few more facts about its physical structure should be discussed. From Miami to Hatteras and beyond, it is clearly defined. On a bright day, parties on a charter boat may observe the abrupt change from the greenish water of the Continental Shelf to the deep blue of the Stream. Scientific measurements taken from a ship entering the Stream have observed temperature changes of twenty degrees between the bow and the stern of the ship. The color and temperature changes at the edge of the Stream are thus abrupt.

The Continental Shelf is a gradually sloping part of the continental land mass from the shoreline to a depth of 100 fathoms (600 feet) and at a distance varying from a few miles as at Hatteras to several hundreds of miles. As it passes up the east coast to Hatteras and turns northeastward, the Stream follows this contour.

Area of Best Fishing

Although marine life is everywhere abundant in the oceans from the equator to the poles, it is along the shelves flanking the continents that most of the salt water game fish and food fish occur. Charter boat skippers advertise rates "to the Gulf Stream." This advertising is accurate in a sense despite the almost total absence of game fish in the stream proper. Marine biologists believe only

Anglers troll past the lightship marking the end of Frying Pan Shoals. These and other shoals are famous for great fishing.

migrating or spawning fish frequent the Gulf Stream; it is along its edge where the mighty marlin, the sailfish and the leaping dolphin are most frequently taken. There is reason to believe that bluefin tuna in the half-ton class pass along the Carolina coast in their annual migrations. If this is true they are probably traveling several hundreds of feet beneath the surface—beyond the reach of anything but an angler's dream of hooking one.

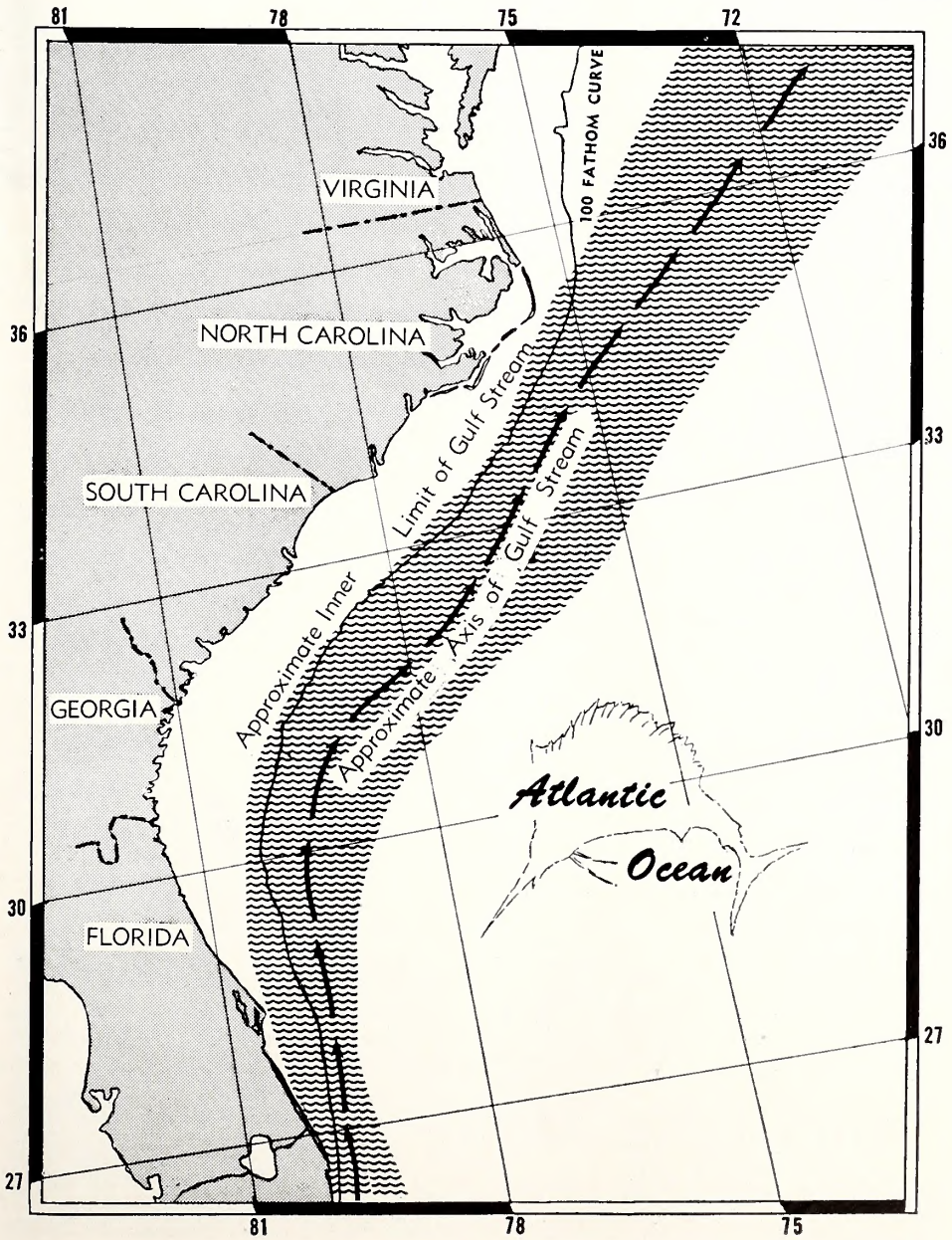
We have then, a vast river of warm water running northward off our coast; it is almost completely devoid of fish that might be interested in taking a lure. It is in the thousands of square miles between this aquatic desert and the coast that our wonderful sport fishing occurs.

Miles of Productive Shoals

Biologists have realized for years that shallow waters are the most productive of marine life for human food and sport. The area we have described above is full of shoals. Most noted is the one at Hatteras where bars extend for miles out to

Beginning in tropical waters and larger than several hundred Mississippi's, the Stream sweeps northward by our coast.

Duane Raver



North Carolina News Bureau

The North Carolina coast is becoming famous for trophy-size blue marlin. A tournament is held annually off Cape Hatteras.

Black sea bass (shown), red snappers, and many varieties of other bottom fish live about wrecked ships and rock formations.

sea, and where hundreds of ships have been wrecked in storms. These hulks, in combination with relatively shallow water, produce much of our finest sport fishing. Nature, in her wonderful way, has sacrificed the lives of men and ships to create an abundance of fish for sport and food; men build more ships to reap the harvest.

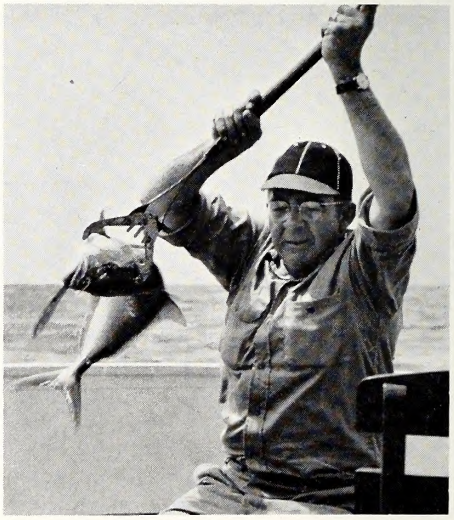
At each of the other capes there are similar shoals: Diamond Shoals, and Frying Pan Shoals are examples. It is toward these shoals that skippers steer their boats to take amberjack, dolphin and sails during the summer months. The water is shallow and warm. There are numerous rocky reefs and sunken ships where game fish cruise about in search of smaller fish that live among the rocks and the torn sides of sunken hulks.

The development of sonar equipment during World War II has been a boon to charter boat owners. The device makes possible locating exactly reefs where black sea bass, red snappers, porgies, and an endless variety of other forms abound. Wrecked ships are being located and marked with buoys—both as navigational warnings and as beacons to the angler to come and get his sport.

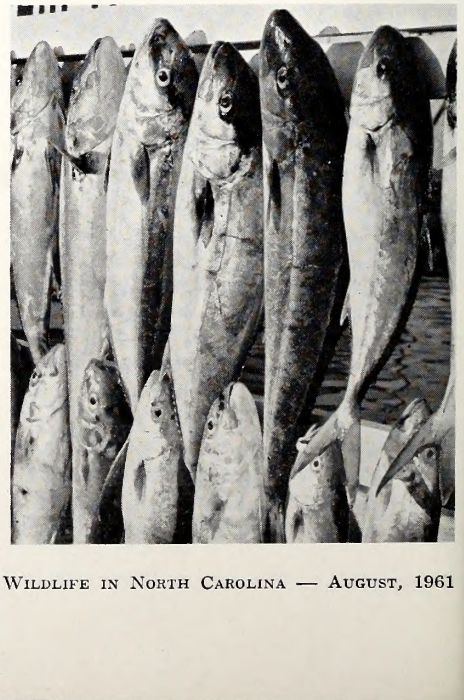
Tropical and Cold Water Fish

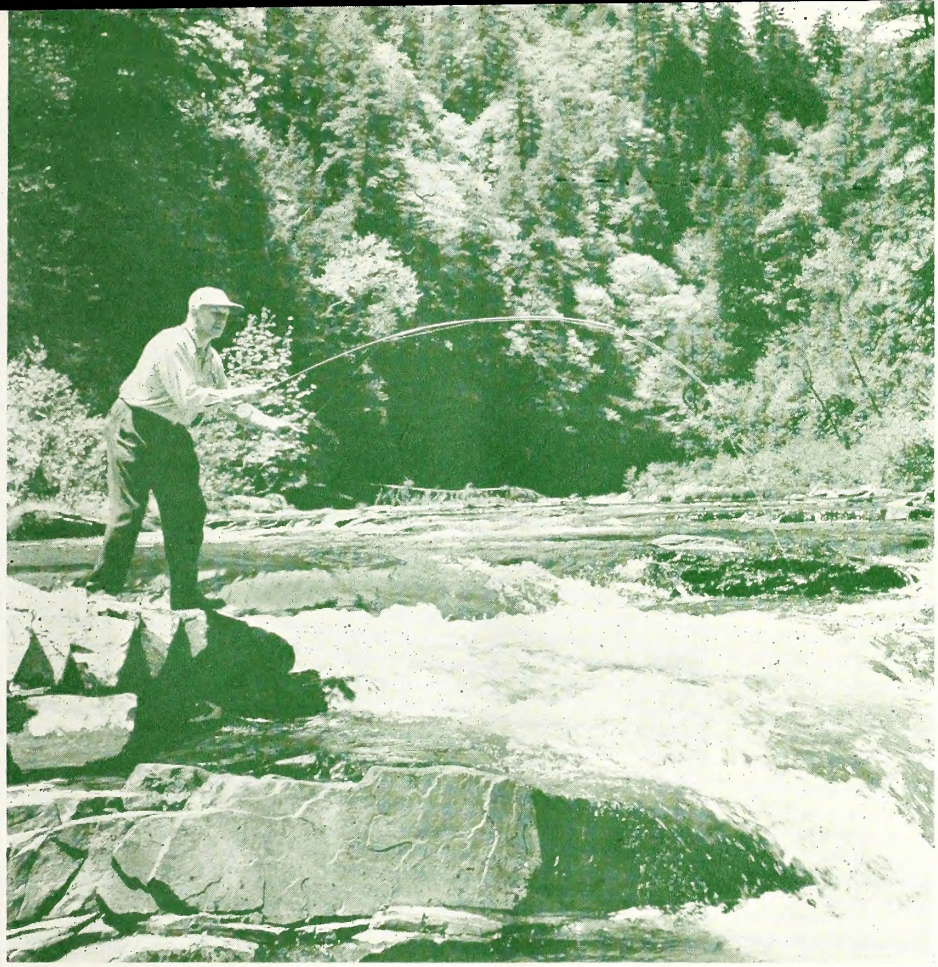
Probably the most important single effect of the Gulf Stream on North Carolina fishing is the formation of Cape Hatteras and the eastward turning of the Gulf Stream. At this point there is a clearly defined temperature barrier marking the northern coastwise limit of the Gulf Stream and the southern extent of the cold Laborador Current that chills the water along the New England coast. This same barrier is closely concerned with the northward migration limit of tropical species, and the southern limit of cold water species. Fortunately, for resort owners and charter boat people from Currituck to Shallotte, there is an overlapping of the two types of fish. This circumstance brings about the occurrence of a variety of fish along our coast that might otherwise not occur.

Two further things should be pointed out regarding the Gulf Stream and its relationship to our coast; first, although the Stream has been known to exist since mariners sailed from America to Europe on its eastward sweep and its westward course on the return trip, relatively little is known about this vast current; secondly, its course is not rigidly fixed. It may move at varying distances from the coast and have a corresponding effect on our fishing. But it is there. Those who love the sing of a line and the whir of a reel are glad for it.



Trolling in the deep usually produces a number of fighting amberjack, shown being boated above; racked for display below.





Forest Service Photos by Daniel O. Todd

A trout angler battles white water and a rainbow in the Linville Gorge Wild Area, North Carolina, which is included in the Daniel Boone Wildlife Management Area.

Wild Areas for the South

by George M. Kyle
Information Specialist
National Forest Service

Lovers of wilderness will welcome the preservation of remote areas.

A MINIMUM of 50 permanent wilderness-type outdoor recreation areas on national forests located in 11 southern states is the goal of the United States Forest Service, according to James K. Vessey, Southern Regional Forester of Atlanta, Georgia. About 20 such areas have already been established.

Vessey describes wilderness use as a necessary and integral part of the intensive multiple use program being carried out on national forests. "The Forest Service nationally devotes a substantial portion of national forest land to wilderness-type use. To the extent that near-natural areas still are available in the 10 million acres of southern national forests, we plan to add scenic and wild areas to meet the needs for wilderness-type uses in the future," Vessey says.

"Other uses of these areas, such as timber harvest, grazing, mining, or roads, which might interfere with their preservation will be modified or prohibited to retain the areas in a relatively natural state."

Natural or wilderness areas with virgin, undisturbed forest are practically nonexistent in the South. Suitable near-natural areas with older trees and little physical disturbance are correspondingly scarce. Setting aside a substantial number of those remaining is the best means to satisfy future needs for outdoor laboratories and areas of relatively untouched wilderness setting.

Wilderness, wild, or scenic areas (the Forest Service classifies them according to size—wilderness 100,000 acres or more; wild 5,000 to 100,000 acres, and scenic areas up to 5,000 acres) thus are recognized as having a necessary place in the multiple use planning on southern national forests.

The national forests described by Vessey include lands from the Atlantic and Gulf of Mexico northward to North Carolina and Tennessee and westward to Arkansas, Oklahoma and Texas. Sites set aside in this approximately one-quarter of the land area of the United States will be representative of the Appalachian and Ozark mountain, southern piedmont and coastal plain types of terrain, plant and animal life. Since the areas to be set aside will be located across the South, they will bring a maximum of wilderness-type uses to the public in this section of the Nation.

These areas will be used by lovers of the outdoors as places of solitude. Here they may walk on relatively undisturbed ground, as their forefathers did in virgin country. Bird watchers and naturalists will find birds, animals, and plants common to the southeast. Fishermen will enjoy angling for native species in their natural habitat. Hunters will find populations of deer, turkey, grouse, and the smaller game birds and animals. Best of all, perhaps, visitors will enjoy areas typical of the locale as they looked to the American Indians.

"Definite, planned selection and preservation of some of the near-primitive areas remaining is our goal. Once scenic areas have been designated, they will be preserved in their natural condition as it exists today, modified only by the forces of nature and the changes occasioned by the greater public interest," Vessey adds.

A group of college students study biology in an "outdoor laboratory" that will be retained in its wild state as a scenic area.

Count Down on Deer Research

by Frank M. Johnson
Wildlife Research Biologist
Bureau of Sport Fisheries and Wildlife
U. S. Fish and Wildlife Service

How many deer can a forest safely support? How long does it take overbrowsed range to revegetate? How can deer populations be accurately estimated? These questions are being answered through cooperative research.

Jack Dermid

WILD game, an annual harvestable crop of the land, is a mobile resource. You can't measure it by bushels, pecks, quarts, or pints. Yet, it is one of nature's commodities that is constantly being measured—measured by the hours of pleasure, recreation, and the satisfaction of the nimrod who brings home a bag of squirrels or a deer. Proper harvest of this crop means taking nature's annual overproductions and leaving ample seed for the next year's crop.

A farmer harvests his grain, stores some for seed and feed, and sells the surplus. He visits the "back 40" and selects the pigs, lambs, and steers he will market. A forester surveys the woods and marks, to the exact one, the number of mature trees the logger will harvest. The fishery biologist with the aid of an electric fish shocker or nets can count the number of fish in streams or lakes and determine how many can be harvested. In contrast, game biologists deal with creatures that inhabit land, air, and water; and the task of counting this highly mobile population in order to estimate surplus game for future harvesting is an exceedingly difficult one.

Biologists depend upon "sign" left by the particular game species under study. The amounts and kinds of food eaten, tracks in the snow, mud, or sand, the number of nests and dens, and the fecal droppings are all indications of the population existing in the study area. Only under special conditions can the exact number of game species be known before harvest. In order to get exact counts, the game biologist must either use many assistants to make drives through game coverts or he must use expensive equipment, such as helicopters and airplanes.

Considerations in Management

When setting up bag limits and hunting seasons, game commissions rely on past kill records, daily observations by game biologists and conservation officers of game animals and their food supplies, and a knowledge of the role of sportsmen in making annual game harvests. The harvest of game can be limited on shooting areas by the length of the open season, number of hunting hours, and the number of hunters allowed into an area.

Today, sportsmen hear of overbrowsed range, lack of forage, scarcity of suitable den trees, clean farming, and grassland farming as reasons for a reduced game crop. Game technicians, nature lovers, and foresters are concerned with maintaining adequate numbers of wildlife species in the forests and fields. Agencies in North Carolina that deal directly with this problem are the North Carolina Wildlife Resources Commission, the U. S. Forest Service, the U. S. Fish and Wildlife Service, the U. S. National Park Service, and the Soil Conservation Service. Trained wildlife biologists from these agencies are exploring all phases of wildlife and its effect on the land. Typical of the problems that arise are: What does each species eat? What are the best means of harvest? How many of each species can the land support?

For the following reasons, foresters and game managers

would like to see game populations a little below maximum capacity in the forests. Game animals eat a variety of foods, and a seasonal failure of any one food means heavy pressure on the remaining supply. Constant pressure on the limited food supply will result in lower productivity, both in the food supply and in game populations. Game species, especially deer, seem to pick out the best timber tree species as their preferred food. Yellow poplar, hard maple, yellow birch, and dogwood are among the species which provide the major food supply for deer during the winter months. After mature trees are harvested where deer are too numerous, the area may not be restocked with seedlings from these tree species because the necessary plant reproduction is overbrowsed or completely consumed. Inferior tree species, such as black gum, red maple, hickory, and hemlock then take the place of the prime timber species.

North Carolina Study

At the Southeastern Forest Experiment Station, Asheville, North Carolina, several studies are under way to find ways of maintaining a healthy forest of quality tree species while also producing sufficient forage to support a huntable deer herd. Cooperating with the Division of Range and Wildlife Management are wildlife specialists from the U. S. Fish and Wildlife Service, the North Carolina National Forests and the North Carolina Wildlife Resources Commission.

One project installed near Mt. Mitchell will determine, by means of a series of fenced exclosures, the time required to revegetate an overbrowsed deer range under the impact of varying populations of deer. Sample plots inside and outside the exclosures are being installed, and measurements of the seedlings by size and species will be made over a period of years. Knowing the number of deer exerting pressure on the available seedlings and sprouts is essential if the proper ratio of deer population for available food is to be found.

Another study deals with a heavy thinning in sapling and pole-size trees. The use that deer make of the new sprout growth and the species of trees which receive the most browsing are other important parts of this study. A study to determine deer preference for several agricultural grass or legume species planted in clearings, plus the amounts of forage produced by these plots, and what type of permanent sod or cover each makes under heavy use by deer is being started. Here, again, it is necessary to know the size of the deer herd and the available food supply to interpret data collected from these studies.

Wildlife Census

Accurately counting the number of game animals or birds produced annually or the number present in a given area is the goal of all game technicians. The fact that we do not yet have simple techniques for doing this attests to its difficulty. It is not possible to inspect all game coverts or drive out all rabbits, quail, grouse, turkey, and deer from an area and count them. One method used by virtually all game departments is to take sample areas from the game habitats and make detailed surveys or investigations of the samples. With appropriate statistical analysis to insure reliability, the numbers of animals counted on a sample area are multiplied by the ratio between the size of the sample area and the total of similar habitat to arrive at a reasonable estimate of the total resource.

A new technique for estimating deer populations is now being investigated by the U. S. Fish and Wildlife Service Biologist assigned to the Southeast Region. Inside a 760-acre enclosure located at a military base, the deer population is found by counting deer tracks in small, cleared, randomly located sample plots. Since the area was stocked before the study was started, the exact number of deer inside the enclosure was known. By checking the plots over a period of months, a relationship can be established between the number of tracks counted, the number of plots used, and the number of deer inside the enclosure. With a known deer population and repeated counts made of the tracks, it is possible to determine how accurately this technique will measure a deer herd population. It is hoped that this technique can be adapted to larger unfenced areas to help biologists, foresters, and other land managers determine more accurately the number of deer on various ranges and the impact that herds of different sizes have on available browse food.

Colors Identify Deer

Another technique employed by research personnel on this project is the use of plastic ear reflectors placed on the front and back side of the deer's ears. The combination of red, yellow, green, blue, and white reflectors makes it possible to separately identify every deer placed inside the enclosures. By using spotlights at night, the reflected color identifies the deer. Using this method, the greatest number counted any one night was 10 of 40 deer present. Daytime observations seldom exceeded more than four at any one time. Thus, population estimates based on animals seen night or day give an answer much too low to be useful for setting bag limits for deer kill or quotas for a season's kill; reliance on these figures would result in an under harvest.

Today, most game departments rely on population trend figures arrived at through kill records to determine existing game populations. So long as food and cover conditions are in good supply and a reasonable harvest is obtained, no harmful results will accrue. However, with the expanding human population occupying more land and having more time available for out-of-door sports, the time is not too far distant when intensive game management must be employed to meet this demand. This means more intensive management of the habitat and an adequate harvest of the game population to maintain range and wildlife productivity. Like the rocketeers who are on the verge of space travel, we must make use of scientific research to improve game management.

Author Johnson prepares an imprint in an enclosure containing a known population of deer. By counting tracks over a period of time, population-track relationships are determined.

Robert Downing

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

License Increases Effective August 1

Effective August 1 the combination hunting and fishing license will sell for $6.25, a $1.00 increase. On the same date county hunting licenses will cost $1.65 instead $1.10. Other hunting increases involve the nonresident season hunting license, raised from $15.75 to $20.00. A newly established nonresident 6-day license will sell for $15.75. The Legislature raised the county fishing license from $1.10 to $1.65; the nonresident season fishing license from $6.10 to $8.25; nonresident 5-day from $2.60 to $3.75; nonresident 1-day from $1.10 to $1.65; nonresident trout from $2.10 to $3.25 and the resident 1-day from $0.60 to $0.85. The prices on fishing licenses will not be effective until January 1, 1962.

WILDLIFE Rates High in Effectiveness

A survey conducted by Will Johns of the Pennsylvania Game Commission and reported to the annual meeting of the American Association for Conservation disclosed the Wildlife in North Carolina reaches 17.48% of 400,495 sportsmen, second highest among magazines of its type for which a subscription fee is charged. North Dakota Outdoors, with a circulation of 19,500 among 87,873 sportsmen had a rating of 22.19%.

Doe Hunt Regulations Announced

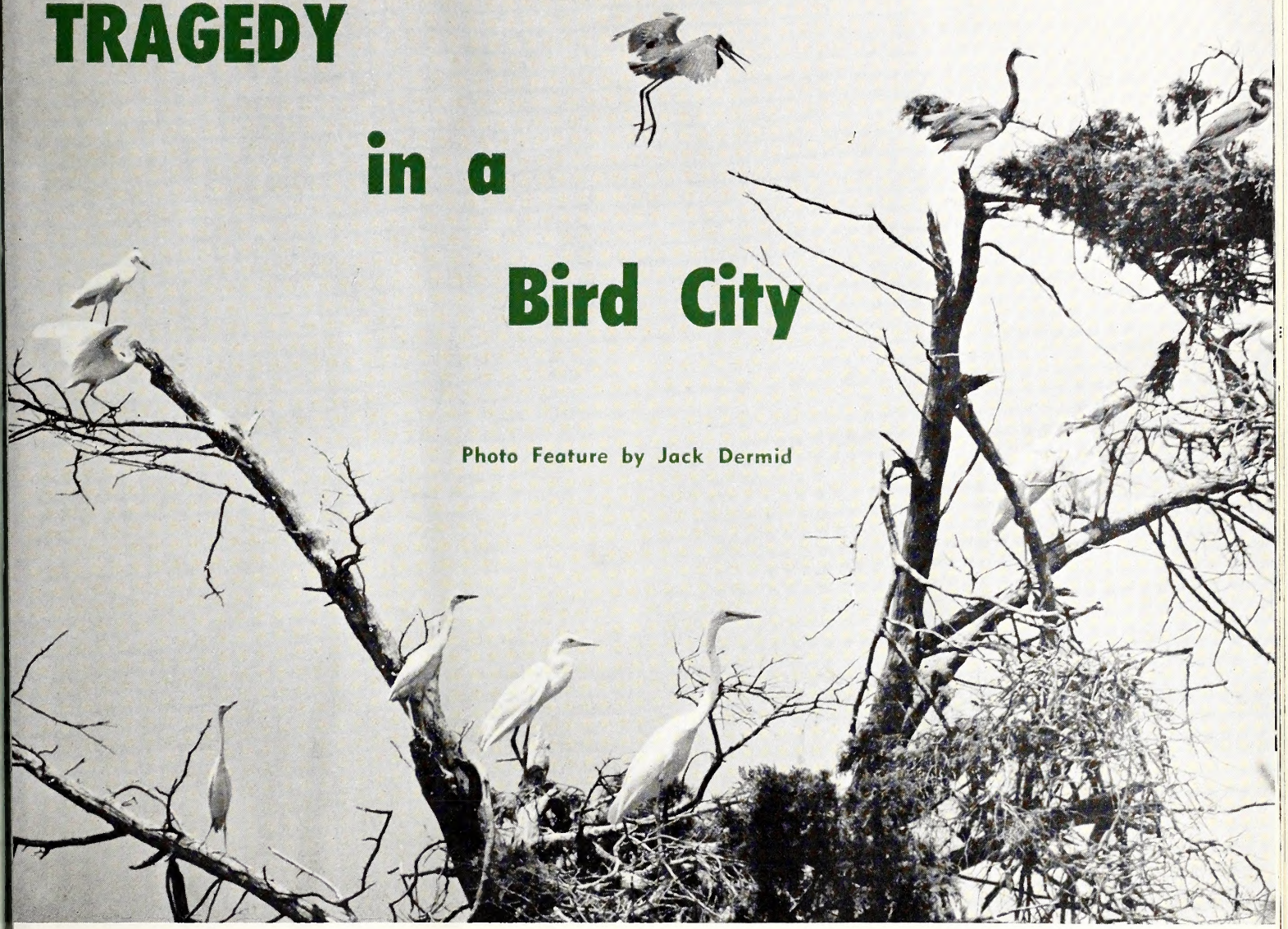
Landowners and sportsmen wishing to recommend doe hunts in their localities should file requests with the Wildlife Commission for such action before August 11. Such hunts will again be allowed on privately owned lands, but as in the past only on the basis of local requests.

Upon receipt of requests the Commission will investigate local situations to determine whether deer populations warrant the taking of females. If this is found to be the case a public hearing will be held near the area being proposed to determine local sentiment in regard to the proposal. Such hearings will be held during the week of September 4. Results of the hearings and other findings will then be considered by the Commission in time to make an announcement of approved areas and dates during the week of September 25.

Any doe hunts scheduled this year will be held during the week of December 11. Bow and arrow hunters may take antlerless deer on such areas during the last six days of their 18-day pre-season hunts.

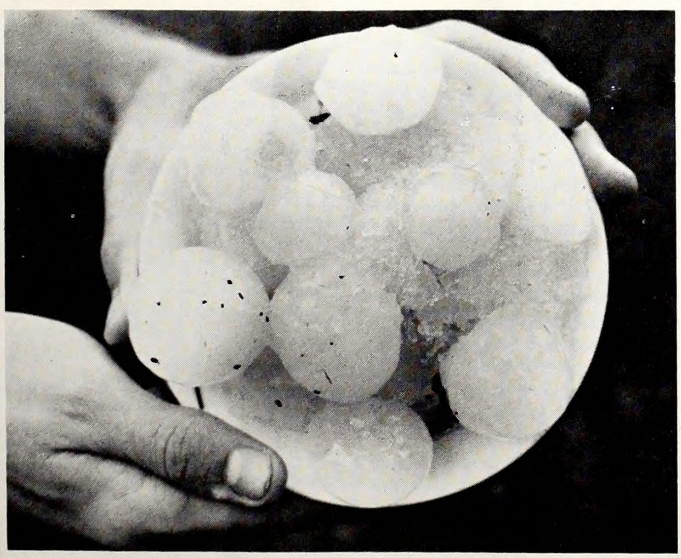
TRAGEDY in a Bird City

Photo Feature by Jack Dermid



Battery Island, located across the Cape Fear River channel from Southport, is a bird city during spring and early summer when hundreds of herons, egrets, and other water birds nest.

The hailstones that struck the Southport area ranged from marbles to hen eggs in size. Average ones were as large as golf balls. George Lindner put these in his freezer for souvenirs.

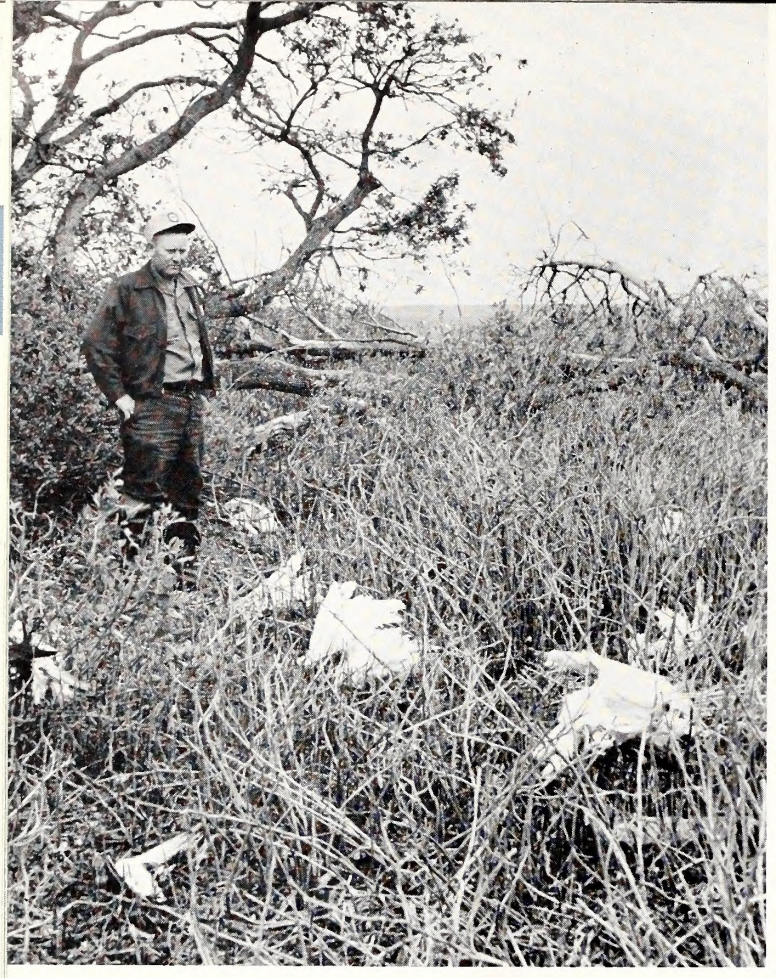


Hailstones the size of golf balls play havoc with nesting water birds.

ABOUT 10 p. m. last May 16, a hailstorm of gigantic proportions struck Southport and nearby areas. Mother Nature unleashed all the fury she could muster from turbulent clouds and bombarded the town for about 20 minutes with hailstones that averaged the size of golf balls.

Driven by high winds from the north, the hail broke window panes by the hundreds, dented automobiles, and pounded holes in shingles. When the storm passed, Southport's streets and lawns were white with tons of ice. Beside houses and fences, ice had collected in windrows almost a foot deep. The next morning residents awoke to find a barren town, with the luxuriant foliage stripped from their live oaks and shrubbery. Total damage was in excess of $100,000.

The first destruction to wildlife was discovered when Mrs. Lewis Hardee picked up about three dozen dead songbirds in her yard. A few days later David Adams of Raleigh, State College graduate student, visited the famed heron rookery on Battery Island in the Cape Fear River. Accustomed to finding the rookery teeming with life, he was appalled by a scene of death. Dead shore birds and gulls littered the beaches and



Hail struck with great fury, stripping the leaves from live oaks and other trees. Here a dead egret dangles near a nest. At least 95 percent of the nests were destroyed by the storm.

Wildlife Protector David Gause of Shallotte surveys the destruction in the heron rookery. In denser areas, the ground was littered with birds; others hung from nests and branches.

Tragedy in a Bird City

sandy openings on the south end of the island. The salt marsh was dotted with crippled herons and egrets, trying to eke out a living with broken wings and legs.

But it was within the rookery itself that destruction was most apparent. The ground was covered with dead American and snowy egrets, Louisiana and little blue herons. Scattered among them in lesser numbers were great blue herons, black-crowned night herons, both glossy and white ibis, and other species. Of the approximately 400 nests in the rookery, 95 percent were destroyed, their contents of eggs or young killed. It was estimated that 60 percent of the breeding adults were either killed or crippled.

The rookery seemed beyond recovery, but Nature has means of restoring life when habitat conditions are good. In a visit to the rookery about a month after the storm, Dr. T. L. Quay of State College's Department of Zoology discovered that nesting had been resumed and counted about 200 nests containing eggs. Quay and David Adams are making a scientific study of renesting activities.

The prospects for a complete recovery of the Battery Island rookery within a few years are good.

Birds of the heron group were not the only casualties. The ground nesting black skimmers, gull-billed terns, nighthawks, willets, and even mourning doves were crushed on their nests.

This black skimmer died over its unbroken eggs, its flattened body protecting them. One willet family, four downy chicks with their mother, were discovered bunched together in death.

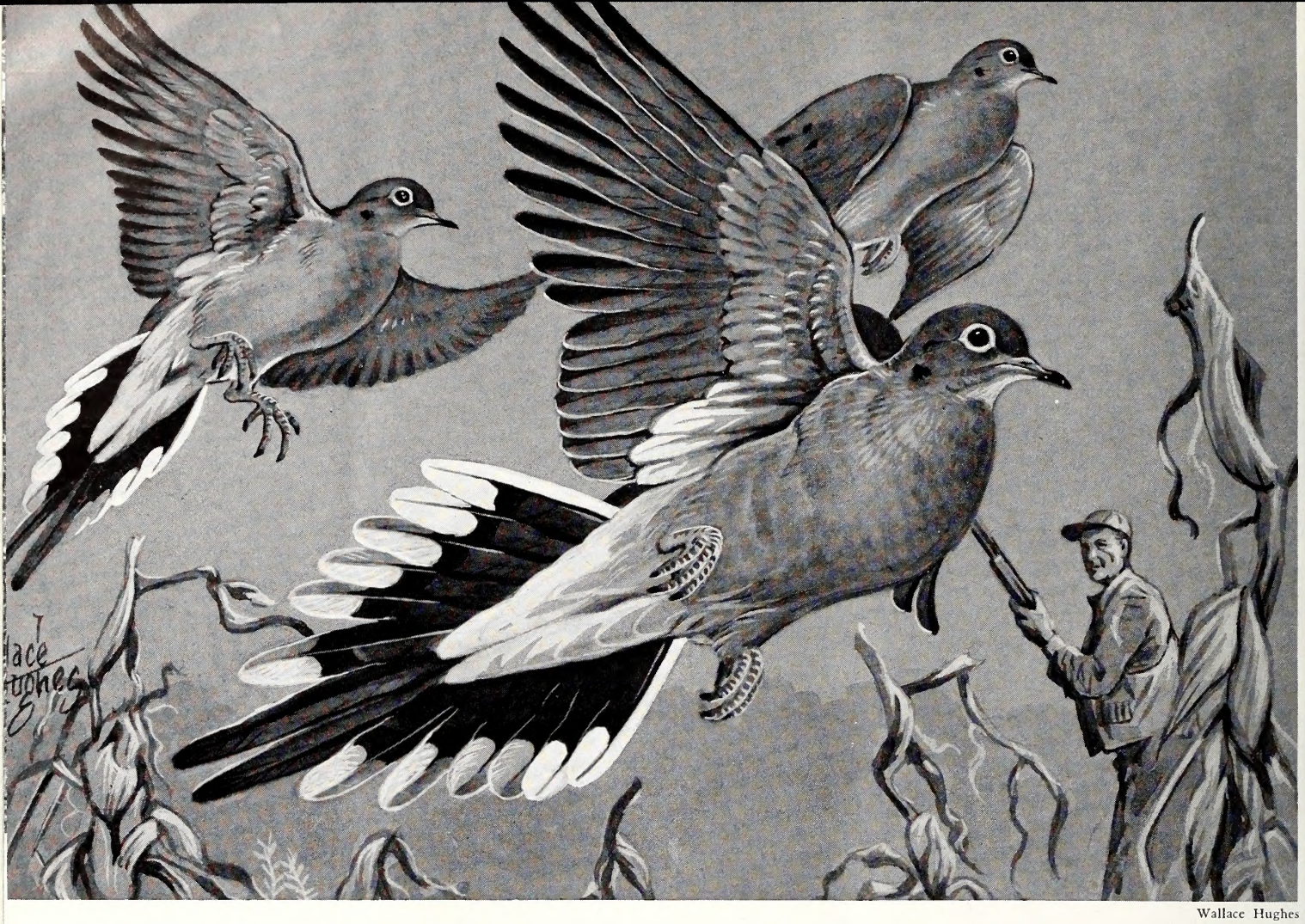
An injured snowy egret, oblivious to the photographer, stands silently among the dead. More than 70 bird casualties were counted around one tree. The total kill was in the hundreds.

With battered head and broken bill, an American egret awaits its doom huddled in the salt marsh. There were many cripples near the rookery, pitiful sights with broken wings and legs.

The scarred branches on this bush indicate that Battery Island took a hard beating during the hailstorm. It is a wonder that any birds survived.

The bird city lives again. Dr. T. L. Quay of North Carolina State College and Protector Henry Barber of Leland visited the rookery a month after the disaster to find the surviving birds renesting. Here they listen to a chick in a pipped egg.

Injured internally and too weak to hold up its head, a Louisiana heron resembles a lady's hat on a stand.



Wallace Hughes

MORE SPORT FOR YOUR MONEY

by Charles B. Woodhouse
Biologist, District 3

Public dove management areas, tried last season for the first time in North Carolina, have proven to be a boon to the sportsman looking for a place to hunt.

"ABSOLUTELY the greatest bargain I've had for my money!" "Best thing the Wildlife Commission ever did!" "Should have more of them!" These are typical of the comments heard last fall around the public dove management areas provided by the Wildlife Resources Commission and landowners on privately-owned lands. The purpose of these areas was to provide additional shooting areas for the growing army of dove hunters.

New Experiment

This was a new experiment in North Carolina—providing public shooting areas on private lands—and it was not known how well this would work out. Apparently, as indicated by the opening comments, the experiment was very successful. Of course, not all the comments were favorable, and not all the areas productive, but the percentage was high on both counts. Success was such that the number of areas is being increased to 14 for the 1961-62 season.

This is the way the program works: The Wildlife Resources Commission "rents" the dove hunting rights on potential dove areas by paying the landowner 50¢ per acre. Also, the landowner, or someone else, is paid $15 per acre to grow 10 acres of browntop millet and leave it in the field for doves. Millet provides an attraction for doves during the early season before the harvesting of corn and milo gets into full swing. These public shooting areas are located as near as practicable to heavier population centers, and are made available free of charge to all who wish to use them.

The farms are designated as wildlife management areas by the Wildlife Resources Commission, and are posted accordingly. Hunting is allowed **only** on **Wednesday** and **Saturday afternoons** during the regular open season on doves. It should be emphasized here that these restrictions and privileges apply to dove hunting **only.** Hunting of other game is done at the discretion of the landowner.

As mentioned previously, the dove hunting areas are a new idea in wildlife management for North Carolina. Last year the shooting was excellent on some of the areas. On one farm, for example, it was estimated that about 250 hunters bagged some 1,000 doves during the first day of the season. On some of the other areas shooting was rather poor.

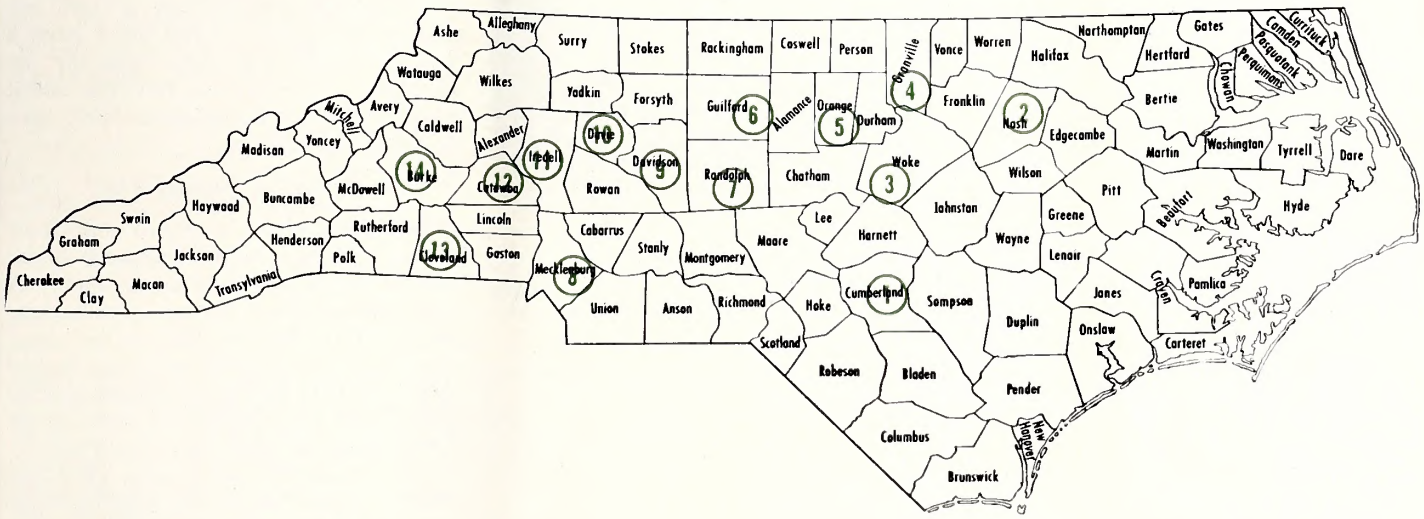
A Place to Hunt

With the experience gained last year, it is hoped and expected that more areas will be in the successful category this season. However, the really important point of the program is that a **place to hunt** is provided for sportsmen who normally do not have such a place. Several hunters expressed their appreciation for having a readily accessible area to take their youngsters, to get them interested in hunting, even though they did not bag a single dove.

With an enlarged program this year, the Wildlife Resources Commission and cooperating landowners are making some 4,400 acres of private land available to the public for dove hunting. About 140 acres of browntop millet are being grown as an early season attraction for doves. And you are invited to hunt a dove shooting area on Wednesday or Saturday afternoons when the season opens.

More sport for your money? The dove hunters think so!

Each of the dove management areas has a 10-acre field of browntop millet, an excellent dove food that becomes available before harvesting of corn and milo begins in the fall.



1960-61 Dove Management Areas

1. Cumberland County. The Herman B. Hubbard Farm, 354 acres, about 10 miles east of Fayetteville and 2 miles north of Stedman on the Stedman-Wade road.

2. Nash County. The W. F. Woodruff Farm, 150 acres, 15 miles northwest of Rocky Mount and 5 miles northwest of Red Oak on county road 1310.

3. Wake County. The J. H. Aiken Farm, 450 acres, 15 miles southwest of Raleigh and 2 miles north of Fuquay-Varina near Needmore on county road 1399.

4. Granville County. The E. B. Averett Farm, 400 acres, about 6 miles south of Oxford, betweent Highway 15 and Highway 96 on county road 1618.

5. Orange County. The Frank Perry Farm, 400 acres, about 3 miles north of Hillsboro, between Highway 70 and Highway 86 on county road 1306.

6. Guilford County. The Guilford County Farm owned by the County of Guilford, 756 acres, about 10 miles northwest of Greensboro and 2 miles north of Gibsonville on county road 2740.

7. Randolph County. The R. J. Doss, Sr., Farm, 155 acres, about 6 miles east of Asheboro and 2 miles south of Highway 64 on county road 2609.

8. Mecklenburg County. The S. N. McEwen Farm, 302 acres, about 11 miles southeast of Charlotte and 1 mile northwest of Mint Hill on Lawyers Road.

9. Davidson County. The W. L. Cox Farm, 295 acres, about 12 miles southwest of Lexington, west of the Linwood-Southmont road and about 5 miles south of Linwood.

10. Davie County. The old Cornelison Farm owned by J. J. Hoots, 250 acres, about 2 miles east of Farmington on Highway 801 and about ½ mile north of R. H. King's store on county road 1456.

11. Iredell County. The Wayne Jenkins Farm, 243 acres, 10½ miles northwest of Statesville, 16½ miles northeast of Conover and 5 miles south of Stony Point on the Old Mountain Road.

12. Catawba County. The Francis R. Sigman Farm, 190 acres, about 6 miles northeast of Newton and 2½ miles south of Claremont on county road 1722.

13. Cleveland County. The Robert Blanton Farm, 159 acres, about 6 miles west of Shelby and 4 miles northeast of Lattimore on the Lattimore-Hollis road.

14. Burke County. Part of the Warlick Avery Farm, 220 acres, about 5 miles northwest of Morganton on Highway 126.

Flounder Gigging

by Jim Hardie
Photos by Jack Dermid

Flounder gigging may sound as exciting as shooting fish in a rain barrel—until you try it. This is a sport that calls for patience and skill, with plenty of rewards.

PLANNING a visit to the coast soon? Try to work a flounder-gigging trip into your plans. It's sure to provide fun and excitement for the whole family, and it might turn out to be an adventure you'll long remember.

Primarily a summertime sport, flounder-gigging continues well into the fall and winter with results diminishing as the water becomes colder.

Three natural conditions which enhance your chances of success are: dark night, low tide and no wind. The combination of these elements makes for a perfect setting.

Of course, when there is no wind, the bugs are likely to be out in generous numbers; so go prepared. But chances are, the excitement of the trip will make you oblivious of the bugs.

Good light is essential if you are to see the hiding flounder at night.

Payoff for a night of flounder gigging can be a catch of these tasty flatfish for the table or for the freezer at home.

There are any number of good places to go floundering, but the tidal marshes between the beaches and Intra-Coastal Waterway, and the creeks and streams which empty into the waterway seem most popular.

It's a good idea to go out during the day and look over the area carefully where you plan to flounder, and it's a good safety measure, too.

Equipment Simple

The only essentials as far as equipment is concerned are a light and a gig. Torches are used for light in some areas. The best light is one which is powered by a heavy-duty battery and is rigged so it can be submerged. Lanterns, gasoline and kerosene, are widely used. And be sure to take along a stringer or cloth bag to put the catch in.

It is wise to wear boots or shoes of some kind to protect your feet from shells and other sharp objects in the water.

You don't have to have a boat, but one is convenient. If you don't have a boat, be sure and wade close to the shoreline. Not only is this the safest place, but it's also the most likely spot to locate a flounder.

Parade of Marine Life

One thing which is sure to make your outing a success is the discovery of an abundance of life in the salt water. A host of creatures will greet you all along the way. For example, there is the horseshoe crab; a slow-moving, hard shelled critter that looks like a sea-going armadillo. The horseshoe crab may startle you, but never fear, it is harmless.

Also along the water's edge you'll see the famed blue crab—much sought after for its delicious meat. Shrimp will skitter by. And there will be popeye mullet, sometimes called "jumpin' mullet." Actually, there will be a constant parade of marine life which will sometimes startle, but always fascinate you.

The flounder is a member of the flatfish family which is one of the most unusual groups of fishes in the ocean. From the looks of a flounder, it is only half a fish because one side is white with the markings and eyes on the other side.

Strangely enough, the young are born with the normal arrangement of organs. But as they grow older they acquire the strange arrangement that prevails in the adult.

Normally, the flounder you catch in North Carolina waters will range in size from under a pound to 6 or 8 pounds.

The halibut, which is a member of the flatfish family that is found mostly north of our coastal waters, grows into a giant. The largest on record weighed 720 pounds! All members of the flatfish

family have one thing in common—they are delicious to eat.

How to Spot Flounders

The flounder frequents shallow water where it lies in wait for small fish and shrimp. Often it will bury itself in the sand with only the eyes and part of its back showing. They are usually well camouflaged, making them difficult to see.

There are three things you can look for: the hump of their back, their eyes, or the overall outline. Once you get the knack of spotting them, you'll be surprised how easy it is.

Don't be discouraged if you have difficulty locating fish at first. It isn't uncommon for Mr. Flounder to fool even the old experienced eye of a fisherman now and then.

Once a flounder is spotted, caution should be taken in approaching it. Get a good grip on the gig, and don't get overanxious. Aim the prongs just behind the eyes, taking care not to spear the fish in the meaty part of its body because there's no use ruining a good piece of meat by tearing it up. And too, a stab behind the eyes is more deadly than one in the body.

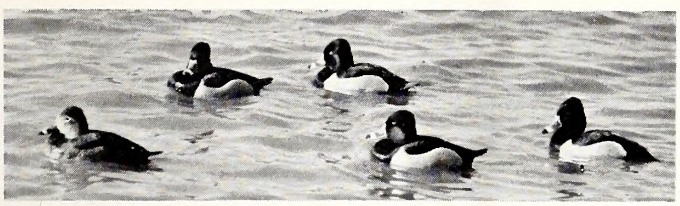
A flatbottomed skiff, poled along by a friend, is the most convenient means of getting to the flounder. Work close to shore, and watch carefully for the hump of their backs, their eyes, or the overall outline of the fish on the bottom.

Take It Easy

One fault of beginners is over-eagerness. An experienced flounder gigger can follow along behind most tyros and pick up a nice string of flounder which have been by-passed by the beginner.

Cleaning and cooking a flounder is the easiest part of all. To clean the fish, simply cut out the intestines, whack off the head and scrape away the small scales on the outside (not necessarily in that order). Broiling and pan frying are both popular methods of cooking flounder.

My first invitation to go flounder-gigging seemed like the go-ahead on shooting fish in a rain barrel. But I had a lot to learn. I returned from that first trip bone-tired, but filled with a sense of satisfaction; we not only had fish for a meal, but also a memorable experience.



BOOK REVIEW

The Book of Bird Life

By Arthur A. Allen. D. Van Nostrand Company, Inc., 120 Alexander Street, Princeton, N. J. 1961, 396 pp., illus., $9.75.

BIRDS are the most conspicuous wild animals on earth. They fill the out-of-doors with song and flashing colors—and everywhere man pauses to listen, watch, and marvel at their activities and beauty.

But how many casual observers of birds understand the things they see? Identification is just the beginning in bird study. There are the marvels of migration, flight, behavior, coloration, and structure. There are the everyday occurrences of feeding, courtship, nest building, and raising families.

The whole fascinating story of birds is told in the new revised edition of **The Book of Bird Life** by Arthur A. Allen, renowned ornithologist and bird photographer. The volume covers everything from the way an osprey catches a fish to why the ruffed grouse drums.

Although the book contains the accuracy of a textbook, it is written in a personal style that is enjoyable to read and easy to understand. The author weaves his lifetime of experiences into the pages as well as the work of others for completeness. It is written for both the serious student and the bird hobbyist—and is a well-indexed reference book besides.

The Book of Bird Life is divided into two major sections. Part I, "The Living Bird," tells the story of birds as described above. Part II, "Methods of Bird Study," gives practical tips for making ornithology a hobby or a profession. Chapters are devoted to bird walks, attracting birds, identifying nests, learning bird songs, bird photography, and more.

The value of the book is greatly enhanced by the variety and quality of the more than 250 illustrations. The majority of them are photographs, both in black and white and in color, made by the author. The pictures along with a chapter devoted to the author's techniques in obtaining them should be of great interest to wildlife photographers.

This reviewer, who discovered the first edition of **The Book of Bird Life** some 20 years ago in his high school library, welcomes the return of the classic in a revised, up-to-date edition. It is a book that everyone interested in birds will find invaluable—Jack Dermid.

The Skipper

Conducted by Duane Raver

"TWO Drown in Rescue Attempt!" Headlines of this type are a common occurrence yet are so often needless. Boating accidents usually set off a chain of events that falls into a vicious pattern. Never is a mishap of this type prepared for and they happen in a twinkling of an eye. Actions are involuntary rather than carefully thought-out, which most always spells dangerous disorder and confusion.

One death should not lead to another. It takes a coldly calculated viewpoint to ignore a struggling person thrashing in the water. Yet if attempted rescue might mean death to the would-be rescuer, it should not be tried. Saving a person in the water is a job for an expert and it is a very tricky procedure even under the best of conditions. Before you dive in in a life-saving attempt, weigh the situation carefully, lest you become the victim.

Never enter the water if the victim can be rescued by throwing him a line, a floating object, or by pulling him into the boat. Look around for life-saving devices and exhaust all possibilities before trying something that might simply add to the disaster. Rough water, breakers, swift currents, all hinder rescue operations at times. Be certain of your chances in life-saving attempts.

Hurricane Weather

If August comes, can hurricanes be far behind? We certainly hope that this little paraphrase isn't true this season and that the big blows with ladies' names stay away from our shores. Last season, hurricane damage to Tarheel boats was extensive. Some of this costly trouble could have been avoided by care in better preparation for the high winds. Forecasting hurricanes has been developed into an exact science insofar as their approach and approximate time of arrival are concerned.

Just where they will strike is still up to the gusty gals themselves. This means that all available precautions should be taken well in advance of the storms. In coastal waters, even if the highest winds stay offshore, high tides and gusts may sneak through and catch the unprepared boatman.

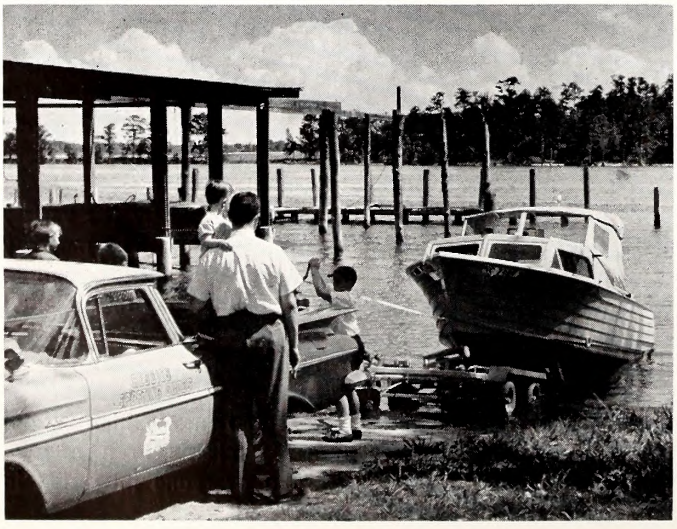
One of the best procedures in protecting your craft is to remove it from the water. With many of the larger coastal boats this operation is impractical and they must head for sheltered areas. If you can get your boat out of the water, store it where there is minimum danger of falling trees or other indirect wind damage. It may seem unnecessary to physically tie down a boat-ladened trailer, but don't underestimate the terrific force of the hurricane gusts.

In tying your craft afloat for the big blow, allow for high water, yet make all lines fast to substantial objects fore and aft. Use all available boat fenders or protectors to minimize hull damage as the boat bangs against a dock or piling in the wind-swept water. Hurricanes mean heavy rains of several inches. This much rain can submerge a moored craft unless the boat is covered in some way. Lash the cover securely.

If your boat breaks its moorings and is lost, report this to local law enforcement agencies and the Wildlife Commission at once. If your craft is numbered, its recovery may be speeded.

At the approach of a storm don't wait too long before protecting your boat. If possible, remove it from the water.

Duane Raver



Danger Spots

It's not the boat that's dangerous, it's the water. Now, while this statement isn't 100 percent true, generally tricky water conditions or situations often contribute to accidents. Some spots are particularly dangerous and more care than normal must be taken here. For example, the waters above and below dams create problems. In most cases, more than adequate warnings are posted in these spots by the operators of the dams. Where sudden water discharges are likely, boats are logically prohibited. But even in cases of relatively small structures, tricky currents are created that can throw a boat quickly.

Duane Raver

Be especially cautious around dams where tricky currents often prevail. Watch for such danger spots, then avoid them.

Sand bars, rock piles, and reefs are ordinarily well marked on coastal charts. Some sand bars however, shift position and become hazards.

Duane Raver

Watchful eyes get no surprise. In operating your boat look ahead at all times. Cut speed in danger spots. Stay alive.

The fact that most obstacles such as these are shown on charts may make the skipper overconfident. Always keep a sharp watch for underwater hazards, particularly at low tide and in shallow inland waters.

Heavy rains wash debris, brush, logs and assorted trash into rivers and reservoirs. Some of these objects soak with water quickly and float just beneath the surface. At these times, the boatman must use extreme care. Never travel at high speeds in waters where submerged obstacles are likely.

Skiers' Sign Language

Chances are that the last water skier you saw gesturing wildly with upraised hand wasn't simply waving a greeting to you. Very likely the hand signal had a specific meaning to the boat operator or even to you if you were too close. Communication by sound between skier and driver obviously is out of the question when skimming over the waves. Yet close touch between these two must be maintained if the sport is to be a safe one.

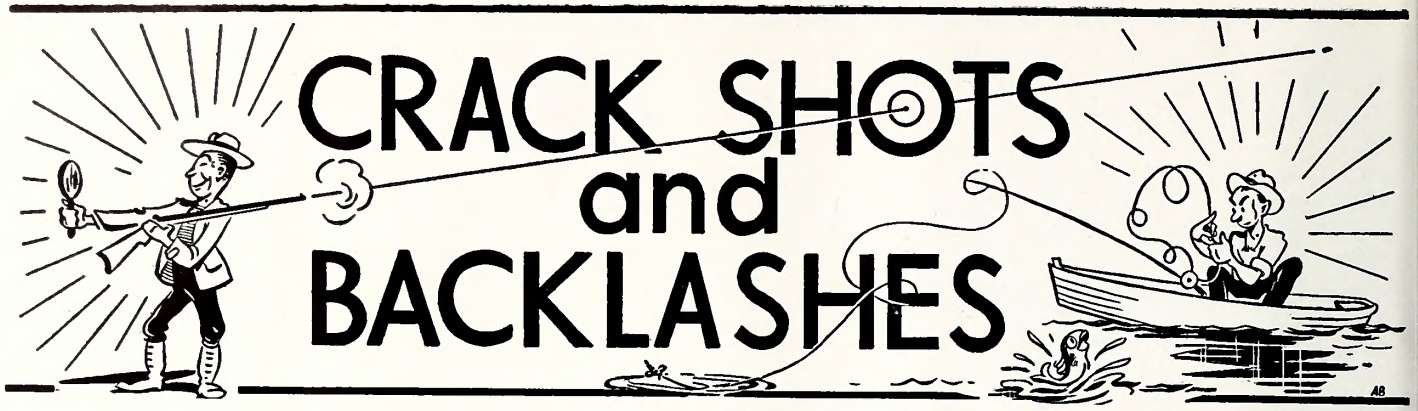
Sign language that they both understand is the answer. Shown here is a universal signal system developed by the skiers themselves to give the driver directions and information. At times the boat operator must respond quickly. The North Carolina Boating Safety Act states that in water skiing one of three specific conditions must be met: either the ski boat must have an observer aboard in **addition** to the driver, **or** the boat must be equipped with a rear-vision mirror, **or** the skier must wear a life-saving device.

It's the opinion of many experts that the second person in the boat is essential in relaying the skier's sign language to the operator. The boat operator must be looking ahead at all times. Even the mirror is not effective at all times.

Know the skier's sign language and heed it.

Tom Dorwin, water ski advisor for Evinrude Motors, illustrates some of the more common water ski hand signals. Center, he goes over the signals to be used with the skier before starting. The hand signals, from top left, are: The universal "OK" sign, meaning everything is fine; thumb or palm down for slower speed; thumb or palm up for more speed. From top right: Cut, meaning the skier intends to drop off; the regular stop signal with palm extended, meaning stop the boat; and use of a finger to point out a direction in which he wishes to ski. Every boatman should heed the sign language of the water skier. Cooperation will lead to safer boating.

Evinrude Motors



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

"Water, water, everywhere—nor any drop to drink."

When Samuel Taylor Coleridge wrote those classic lines back in the beginning of the Eighteenth Century, he, being a dreamer, little dreamed that his words might one day be true of inland waters as well as the ocean.

Speaking at the Eighth Annual Water Conference in Arizona last April, Oklahoma's Senator Robert S. Kerr said, "In the near future most Americans will be drinking, cooking with, bathing in or otherwise using secondhand or thirdhand water. This means that water will have been used, and purified, and used again—not once, or twice, but perhaps several times."

North Carolina is blessed with an abundance of rainfall, some forty inches each year. Nevertheless we are already experiencing shortages of useable water. Only in the last decade have we become generally aware that water is our most critical natural resource.

Although the Tarheel pollution problem is not as acute as it is in more populous and more industrialized states, we have done an excellent job of tainting our natural water supply. Bud Jackson, former field representative of the National Wildlife Federation, said that of six millions of people living in the watersheds of the five major rivers running through North Carolina, five millions have to drink water that has been treated because of pollution.

Basic Problems

There are three situations where water causes trouble: too much (heavy rainfall causing floods), too little (drought) and abuse (pollution).

The U. S. Government is spending millions of dollars on research to find an economical way to convert sea water into fresh water. More millions are being spent in such states as California to blast huge tunnels through mountains to pipe in sufficient water for people in metropolitan areas to drink, cook with, bathe in, or water their lawns and shrubbery. Billions are being spent to create huge dams in the semi-arid states of the West to provide water for irrigation. In areas where rainfall averages less than twelve inches per year, people of all walks of life are keenly and constantly aware of the critical importance of our most critical natural resource.

North Carolina has a tremendous asset in her bountiful supply of clean water for drinking, swimming, fishing and boating.

Here at home, we get almost four feet of fresh water straight down from the sky. Some of it evaporates; some of it soaks into the ground to make crops grow and returns to the surface from wells and natural springs. Most of it flows down our rivers to the sea from whence it came.

We can do little to control the amount of water that evaporates, and even less to control the amount that goes into underground storage for wells and springs. We are learning a great deal about flood control, and how to harness our streams to produce electrical energy. We have learned all too well how to pollute our streams with industrial and municipal wastes.

Streams are the main source of water for industrial and municipal use. At the same time they provide an important part of the habitat for fish and many species of game. Fish and game do not *pollute* water in the accepted sense of the word. People do. When people have polluted water to the point where it is no longer suitable for their own use they have also spoiled it for wildlife.

Apropos

This bit of philosophy appeared in the Buncombe County Wildlife Club's monthly bulletin last May:

Three monkeys sat in a coconut tree discussing things as they're said to be. Said one to the others, "Now listen, you two, there's a certain rumor that can't be true—that Man descended from our noble race—the very idea is a sore disgrace. No monkey ever deserted his wife, starved her babies or ruined her life. And you've never known of a mother monk to leave her babies with others to bunk, or pass them on from one to another 'til they scarcely know who is their mother. And another thing you'll never see—a monk build a

fence 'round a coconut tree, and let the coconuts go to waste forbidding all other monks a taste! Why, if I'd put a fence 'round a coconut tree, starvation would force you to steal from me. Here's another thing a Monkey won't do —go out at night and get on a stew, or use a gun or a club or a knife to take some other monkey's life.

"Yes, Man has descended, the ornery cuss, but brother, he didn't descend from US!"

Wonder who wrote that—Lucretia Plymph, maybe?

A Myth . . . ?

There was, once upon a time, a monkey named Ham. Ham had played his part in spacial and atomic research and was retired to a home in a zoo. Then, The Bomb burst and nuclear fission destroyed all living creatures, except . . .

Ham believed himself to be the sole survivor of the halocaust. The blast tore open his cage, and Ham was free to go where he wished. For days he wandered over the earth in search of food and companionship. Finally, in a wilderness cave, Ham found Eva. The two anthropoids were glad to see each other, each thinking itself to be the sole survivor on Earth. After much chatter and small talk, Ham asked Eva if she had anything to eat. Eva ran back into the cave and returned, proudly displaying an apple.

Ham looked hungrily at the apple for a while and after profound thinking said, "No! Let's not start that again!"

Gas Tax Funds

An important measure dealing with use of marine fuel taxes for boating facilities has been passed by the Utah Legislature and approved by the Governor.

The approved measure amends the state motor fuel tax law and provides for a transfer of a portion of such taxes to the state boating fund. The approach taken in this particular statute is just a little bit different from that used by any other state. The new section provides:

"At the beginning of each fiscal year (the State Treasurer shall) place an amount equal to the amount received upon the sale or use of motor fuel used in motorboats registered during the previous calendar year under the provision of the state boating act in a special boating fund, as established pursuant to section 73-18-22 Utah annotated 1953. For purpose of this section, the legislature finds it a fact that each such motorboat so registered consumes an average of 100 gallons of motor fuel annually."

On the basis of 1960 boat registrations (18,000), and a state fuel tax of 6 cents per gallon, this means that $108,000 will be transferred annually to the state boating fund. On the basis of the best available estimates nationally 1 percent of all fuel tax collections are derived from motorboat use. Thus Utah boaters are actually paying about $195,100 in fuel taxes during the year. Under the Utah boating act all motorboats are numbered and money in the state boating fund in excess of that necessary for the administration of the act may be used in the development of boating and sanitation facilities.

Here's an example of the many fine wildlife food plantings now flourishing in the Tarheel State. This patch, on the Robert Lee Loman Farm near Connelly Springs, contains buckwheat, milo, and a border of lespedeza shrubs for quail and rabbits.

WILDLIFE Gets Around

The following letter from a subscriber in Haiti brings up an interesting question about mourning doves. Dr. Fred S. Barkalow, head of the Zoology Department at N. C. State College, says that the mourning dove *Zeniadura macroura carolinensis* (with a name like that, no wonder they are called "mourning" doves) is native to Haiti, and there is a likelihood of migration to Florida. We are checking with the U. S. Fish and Wildlife Service to see if banding records show such migration.

DEAR SIRS: Time has come to renew my subscription to Wildlife.

Though there are some big differences in climate and wildlife in North Carolina and Haiti, I have enjoyed very much reading your magazine.

In Haiti there is no such thing as conservation of wildlife and game. As I am something of a hunter—with bow and arrow, and air rifle, I take the liberty of adapting some of your articles from time

Wildlife PRODUCES for NORTH CAROLINA

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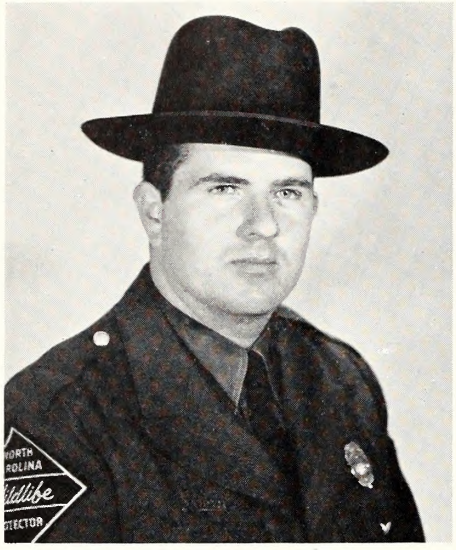
PROTECTOR OF THE MONTH



Billy D. Hedrick

The Granville County wildlife protector, Billy D. Hedrick, was born in Davidson County on July 13, 1936. He attended the Davidson County Public Schools and was graduated from Davis-Townsend High School in 1954.

Prior to his employment with the North Carolina Wildlife Resources Commission, he was employed as a printer for Tri-Bee Label Company in High Point, N. C. Billy was employed as a wildlife protector on June 1, 1960, after having completed the pre-service training school for wildlife protectors at the Institute of Government in Chapel Hill. He has also attended two in-service training schools.

Billy is the son of Mr. and Mrs. R. L. Hedrick of Lexington and he is married to the former Patricia Harkey. He is a member of the Granville County Wildlife Club and the Corinth Volunteer Fire Department. Mr. and Mrs. Hedrick attend the Corinth Baptist Church and they reside at Route 2, Oxford.

DIVISION ENFORCEMENT RECORD FOR MAY

HUNTING & FISHING:	
Persons checked	41,924
Total prosecutions	710
Total convictions	683
Total cases not guilty	13
Total cases nol prossed	14
Total cases dismissed	4
Total fines collected	$3,764.30
Total costs collected	$5,525.00
BOATING:	
Boats checked	19,910
Total prosecutions	168
Total convictions	161
Total cases not guilty	1
Total cases nol prossed	6
Total fines collected	$ 542.00
Total costs collected	$1,312.40

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

to time in the local press to try to change the mind of hunters in Haiti.

I appreciate very much any writing upon doves and waterfowl which are approximately the same as our species. Please, would you tell me if the doves we have here travel from your country; as I have noticed, at certain periods, they disappear almost completely.

One thing to finish; when I send you one dollar for a two-year subscription, I wonder where is your profit. GERARD H. PARISOT, PORT AU PRINCE, HAITI.

There is no profit, but if our magazine helps spread the conservation gospel to other lands, we are gratified—Ed.

Conflict on the Water

DEAR SIRS: I have been reading Wildlife for about two years, and enjoy it very much; in fact I don't see how I could do without it. Please enter my subscription for another two years as I don't want to miss a copy. We have a situation here in South Carolina, and I guess you have it in North Carolina also. There are so many motorboats now on our lakes and rivers that the good old fishing days are about gone. Just about time a fellow settles down to do some fishing here comes a speed boat that breaks it up. Now I know the people that have pleasure boats enjoy them as much as we fishermen like to fish but there should be some way that we both could enjoy the sport we like best. I would appreciate some suggestions on how to remedy this from you or some of your readers. JOHN W. HARRINGTON, FLORENCE, SOUTH CAROLINA.

Hunting on the River

DEAR SIRS: In reference to the article in "Crackshots and Backlashes," of the April issue, entitled "Evil Practice," I would like to say that I am a deer hunter and can speak from my own knowledge and not depend on someone else's say so such as the anonymous character who wrote the above mentioned article apparently did.

I was quite perturbed to discover that this individual was laboring under such a false conception of river hunting. I have hunted on Roanoke River for the past four or five years and I have seen many bucks go across the river. These bucks are far from being exhausted and "sitting bucks," as anyone who has been on the river can easily see. The only exhausted deer I have seen are the "protected does" which come to the river after being shot by some trigger-happy hunter who either doesn't care or shoots anything that moves. I have seen these does come to the river when they are hurt and shot so badly they can hardly swim across. This sight is enough to turn a true sportsman's stomach.

Another sickening sight for the deer hunter is the slaughter which occurs during the open season period. No true hunter could kill such as I have seen killed during this period. Many of the deer that were killed during this period were no larger than dogs. This is not my idea of sport, and it lowers to a minute degree the high standards of the sportsman.

I would like to see this part of the deer season stopped. If deer are so plentiful as this, why aren't they trapped and transported to other parts of the state so that deer hunting can be wide spread and enjoyed by all? As it stands now the areas populated with any degree of density by deer are controlled by a small group of individuals in comparison with the number who buy licenses and are supposed to be entitled to hunt. The river is open to all and is a means by which all hunters can enjoy the sport of deer hunting.

Just because an individual hunts on the river doesn't mean he is participating in a low method of hunting. A sportsman will be a sportsman no matter where he hunts.

My father and I have been taking the Wildlife Magazine for several years and we have thoroughly enjoyed the facts and information presented in it. RAYMOND W. PARKER, JR., ROCKY MOUNT.

Whyizzit? Killing a big buck is trophy hunting; killing a small one is sport—but killing a doe (legally) is slaughter?

Backlashes?

DEAR SIRS: We all know that Wildlife is a propaganda sheet for the Wildlife Department, but don't you ever get any letters of criticism?

I can well understand that if you all spend money on all projects like you do

August is the month when many vacationers head for the mountains or seashore. Some choose to take their tents and other camping equipment along. Campsites are scattered throughout the State. These anglers have pitched their tent where Oregon Inlet laps almost at their doorsteps. Camping is adventure for the whole family.

the rockfish hatchery at Weldon, North Carolina, there is no end to the amount you need.

Up until the Wildlife Commission took over this hatchery, each year April 1, one man came down, opened and operated this hatchery for about six weeks. He furnished two pans to each boat to work eggs in, and he tended and hatched and distributed every rockfish egg brought in, anywhere from four to ten million eggs. All this at a cost of I'd say five to six hundred dollars including salary.

For the past few years under the Wildlife Commission, this same hatchery has from four to six Wildlife cars parked around it, several boats and trailers, and a personnel of several men. The entire area around the hatchery is roped off entirely for parking and loafing of Wildlife personnel, and they are hatching no more eggs now than they were 2 years ago. We paid $10 per million for eggs 25 years ago and still get $10. Lots of fishermen don't even bother to bring the eggs in for this small amount.

Now don't tell us that you are making a study of the rockfish, for you have been studying them about 10 years now and should know all there is to know about them. No, this costly undertaking will continue as long as you can squeeze the money out of us for it; as well as some of the other projects you are handling.

I might add that I don't think anyone appreciates a letter published without a name, and I don't know of a magazine or paper that will do that other than Wildlife. R. T. HARDY, ROANOKE RAPIDS

Yes, we get letters of criticism and we are glad to publish them. Criticism, however, is rarely constructive. To set the record straight, let's look at the facts rather than appearances or guesswork.

1. The hatchery is never opened until striped bass arrive in numbers, usually between April 20 and May 1.

2. Since the hatchery operates 24 hours per day it would be impossible for one man to operate it alone.

3. Egg pans became obsolete many years ago when it was learned that we get a higher percentage of hatch by having fish brought into the hatchery for removing eggs and getting them fertilized. We have never heard of a 100 percent hatch.

4. As to the study and the loafing: For several years N. C. State College, the Stream Sanitation Committee, the River Basins Study Section of the U. S. Fish and Wildlife Service, and the Wildlife Resources Commission used the Weldon Hatchery as a base for evaluating the quantity and quality of the water coming down the Roanoke River. These men, like the hatchery crew, and in addition to the hatchery crew, had round-the-clock duty. After about twelve hours on the river *anyone* is entitled to loaf, or even do some fishing.

5. The number of eggs processed in the hatchery depends on water, weather, and the fish supply. We hatched 32,000,000 eggs in 1954, and pay $20.00, not $10.00 per million.

As a result of the "study" the Federal Power Commission has for the first time in history included a water *quality* clause in the Gaston and Roanoke Rapids reservoirs licenses, thus establishing a most important precedent of nationwide significance in fish conservation.

When the hatchery opened in late April, two men went on duty. One was a laborer working eight hours a day. The other was a trained biologist pulling the other 16-hour shift, on call 24 hours a day and seven days a week—at no increase in salary. The "study" has been completed.

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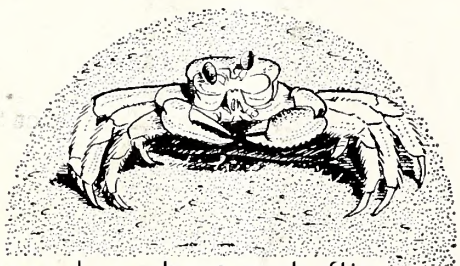
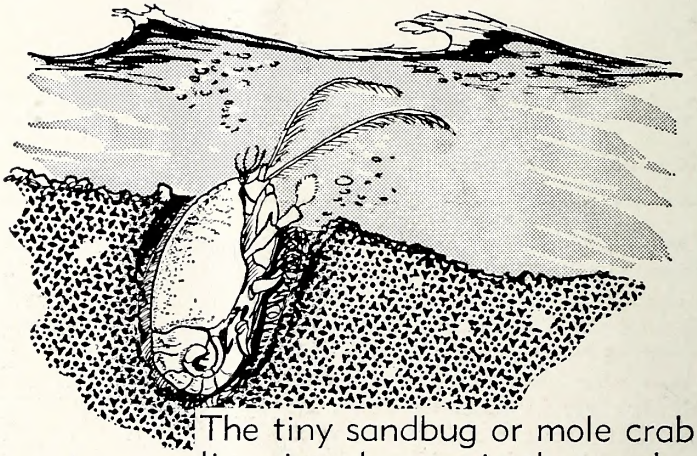
Shifting Sands

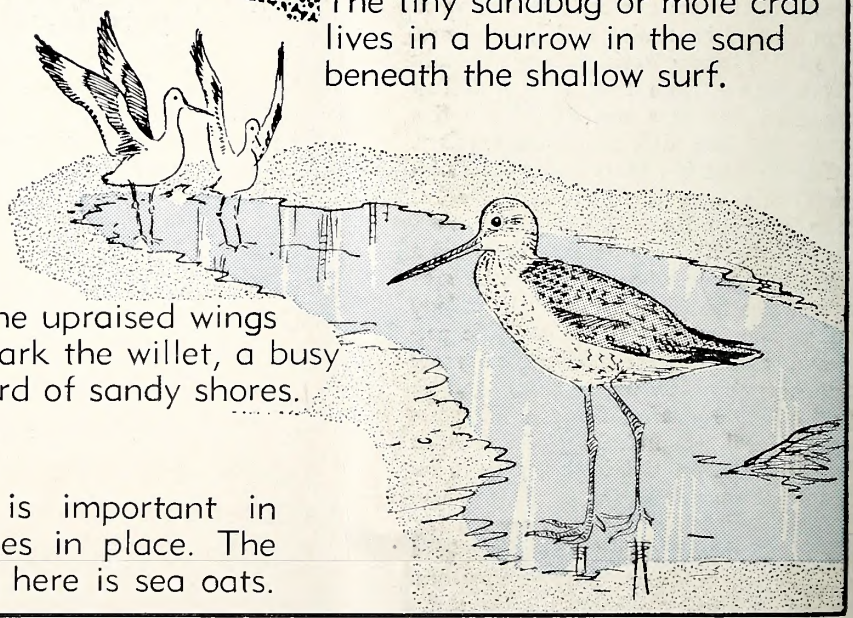
The dune and beach communities show Nature's age-old struggle of sea and land. Sand and trees are molded by the relentless winds from the ocean.



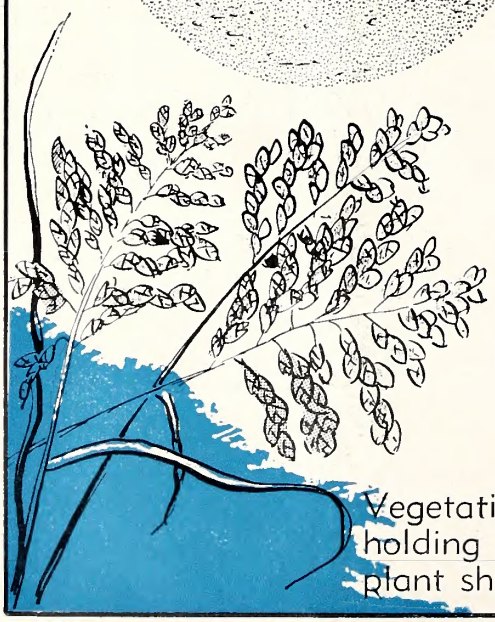
The sand or ghost crab flits about the shifting sands in search of food or frolic.



The tiny sandbug or mole crab lives in a burrow in the sand beneath the shallow surf.



The upraised wings mark the willet, a busy bird of sandy shores.



Vegetation is important in holding dunes in place. The plant shown here is sea oats.

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Wildlife in north carolina

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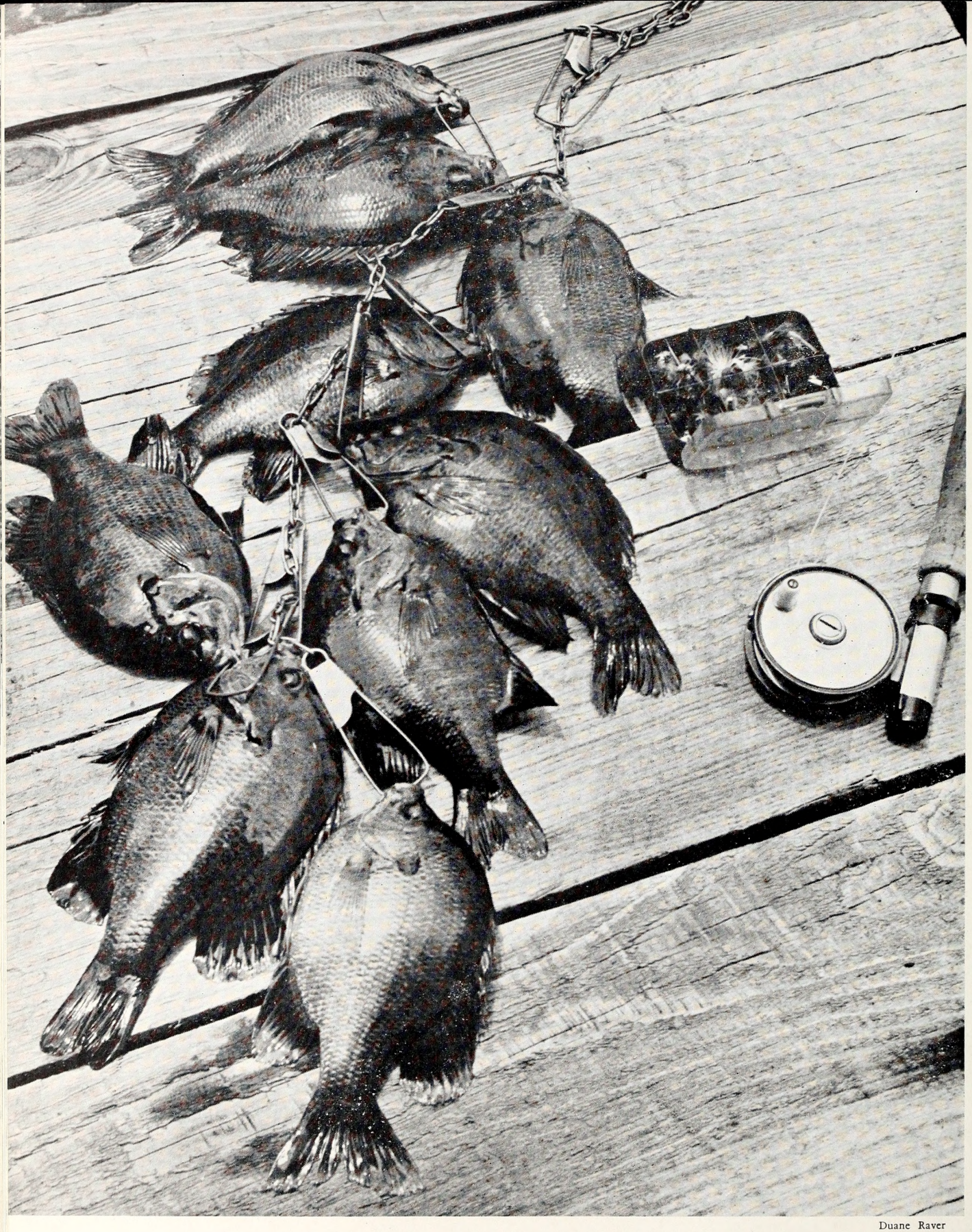
september 1961



Duane Raver

Fall Harvest

To the angler who has patiently waited through the summer's heat, September holds a promise of fall and the harvest of his favorite fish. Shorter days and a few cool nights put the bluegills back on top. Strings like this come more frequently as summer's grip relaxes and Nature again becomes a little friendlier. The fall harvest is almost ready for you.

State of North Carolina

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Wildlife Resources Commission

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Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

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COVER

Fall months may provide some of the season's best inland angling. By September the hatch of fry has either grown up or has been eaten up and the roving game fish must range farther to find a meal. The smallmouth bass featured on this month's cover has passed up two colorful darters in his survey of the rocky shoreline. Crayfish rate high on the smallmouth's menu and it may be this delicacy that is on his mind. In North Carolina this bass is found in the reservoirs and streams of the mountains and foothills. Give this bronze-backed fighter a try. Painting by Duane Raver.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

HOW MANY FAWNS?

by Edward J. Larimer

Jack Dermid

A new source of information on North Carolina's deer herds became available when the 1957 General Assembly permitted the harvest of antlerless deer. Here was an opportunity to sample a rich new field of biological information. In the fall of 1957 field crews of Wildlife Commission biologists took ages, weights, and measurements from hunter-harvested doe deer for the first time. In addition, ovaries were removed from 77 legal doe kills and preserved for future laboratory study.

The ovaries, a pair of white pea-shaped reproductive organs, tell the story of the deer's breeding history for two seasons. Through examination of the ovaries, a picture of the breeding habits of the entire deer population can be drawn.

As in most research, the job of finding the facts, interpreting them correctly, and applying the knowledge gained from analysis called for many days of careful work before and after the hunts. Commission deer biologists spent several weeks boning up on the ovarian analysis technique developed in New York by game specialists and since refined in several other states. Letters and telephone calls went across the United States and Canada to men with hard-earned knowhow in this work. A reference library was built up. One Commission biologist gained experience by working with members of the Southeastern Wildlife Disease Laboratory. Field crews were selected, trained and equipped. Checking stations were prepared for business.

Collecting the Information

During the antlerless deer hunts biologists were on hand when doe deer were passing through the checking stations, and they carefully removed ovaries from all available deer. These were labeled, preserved, and forwarded to the laboratory. Nearly a thousand pairs of ovaries have been sectioned and examined. Findings have been recorded, grouped by age classes, reduced to workable tables, and analyzed.

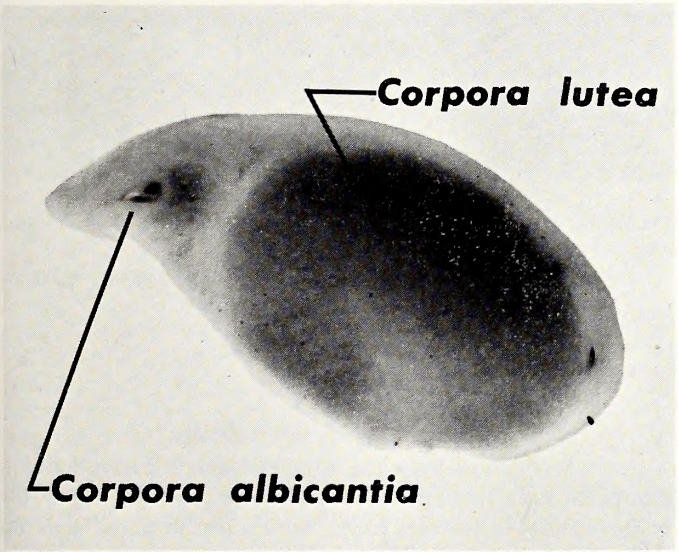
Early mistakes were corrected. For example, the attempts

This article was written with a twofold purpose. It is primarily a report covering phases of a four-year study on doe deer ovaries in North Carolina. Another objective is to present this research as an example of the approach to many similar problems in the wildlife field. It is hoped that this approach will partially explain some of the work done by our biologists in developing a scientific basis for game management.

to collect ovaries from all the doe hunts with a limited number of biologists resulted in inadequate sample sizes. Weaknesses in aging deer under field conditions were found. There were difficulties in identifying evidence of pregnancy in the ovaries. Collection dates were such that unborn fawns were not available in sufficient numbers to establish the most reliable ratio between pregnancies and live births. The entire technique was—and is—subject to constant close scrutiny and improvement.

Telling the Past and Future

Painstaking study of the ovaries yield valuable information. Cream-colored bodies in the ovaries called **corpora lutea** indicate the female's fertility during the current year. Smaller brown or orange markings, called **corpora albicantia,** are the scars from pregnancies of the previous year.



Jack Dermid

This section of a deer ovary shows the enlarged corpora lutea in the center, with the scar of the previous year's fawn, or corpora albicantia, at the left side of the inch-long ovary.

Both **corpora lutea** and **albicantia** can be counted with the naked eye after the ovaries are sliced into thin sections. With some reservations, these measures of fertility and productivity tell us how many fawns will be born during the coming year as well as the number dropped the previous year. The sample provided by doe season kills reveals reproductive history of the entire herd.

Key to Good Management

A knowledge of the fawn drop is one of the keys to good deer management. We know that the fawn crop reflects the condition of the home range. Where deer have a good food supply throughout the year, and are healthy and uncrowded, the annual fawn crop will look something like this:

Fawn does (less than 1 year old) will average .3 fawns.
Yearling does (1½ years old) will average 1.5 fawns.
Mature does (2½ years and older) will average 2 fawns.

The fawn crop will be considerably lower than these averages on overcrowded deer ranges with inadequate food supplies. Storm flags are flying in **corpora lutea** and **albicantia** counts show that the fawn drop in a particular section is well below that expected for good deer ranges. We are then warned that herd reduction is needed.

Experience has shown that the only way to bring an overpopulated range back into balance is through the harvest of antlerless deer. It is a hard fact that only 10 to 15 percent of the herd can be harvested under a bucks-only law. In contrast, the annual fawn crop can bring a 20 to 40 percent increase in the herd in a single year.

A continuing year-to-year check on the ovaries tells us whether the situation is being corrected. If hunters begin to take enough deer to bring the herd back to a proper balance with the range, the fawn crop will increase. If the kill continues to be inadequate, the **corpora lutea** and **albicantia** counts will remain low or even decrease. This means that further liberalization in doe harvests becomes necessary.

A Look at What the Pictures Revealed

Let's take a look at the pictures revealed by ovarian studies during the past four years. The data presented here are limited to adult does—those animals 2½ years old or older when the ovaries were collected. This limitation is a practical one; based on weather conditions in North Carolina doe seasons can't be reasonably scheduled later than December. And about 90 percent of the adult does have been bred my mid-December. Female fawns, however, usually experience their first heat after the first of the year, and a sizable percentage of the yearling does are also bred after mid-December.

Necessity forces us to rely on the adult segment of the doe population only when harvests are made in mid-December. A mid-December fertility rate averaging 1.85 fawns per adult doe indicates a healthy herd on a good range. Here's the picture of fawn production as revealed by ovary studies of three non-management area doe hunts, brought about primarily by crop damage which led to a demand for open season on antlerless deer:

Area	Average Fawn Production Per Adult Doe		
	1957	1958	1959
Montgomery County	1.65	1.77	2.00
Stanly County	1.50	2.00	1.50
Four Coastal Plain Areas*	2.00	1.45	1.76

*Hertford, Bertie, Halifax and Craven counties

The above areas show fair to good fawn production. The heavy crop damage that brought about these antlerless deer hunts may indicate that the deer are feeding on farm crops in order to make up for shortages of woodland browse. As the doe hunts scheduled to date have been based on either crop damage or known overpopulations, these depredation areas are the only sources of comparison with management areas.

Different Pictures on Management Areas

Fawn production on five closely controlled management areas show a variety of different pictures. Fertility and productivity measurements from these areas are particularly interesting because complete kill records are known and can be tied in with fawn production. Moreover, drive counts, antler and weight measurements, and range surveys from the management units have already indicated varying stages of overpopulation and serve as checks on the ovarian analysis findings.

Downward Trend Reversed at Uwharrie

Fawn production showed a steady decline until the total harvest of bucks and does topped 200 animals per year. After that, fawn production bounced up to a very respectable figure. It is believed that this is a case where adjustments in the harvest have reversed a downward trend in fawn production as well as showing us the minimum kill needed to keep the herd in balance. The Uwharrie sample was unique in

Jack Dermid

Ovarian analysis required many hours of painstaking laboratory work to produce the needed information. Here Jack Larimer, who supervised the study, is shown examining a test tube containing an ovary from one of the management areas. The ovaries were sliced into thin sections which were then carefully examined so that the reproductive history could be learned.

that adequate samples of ovaries were taken throughout the study period. It should be noted that the effect of a year's harvest of deer is evident in the fawn drop of the **following** year, so that the higher harvest in 1958 at Uwharrie, for example, is reflected in the sharp increase in the 1959 fawn crop.

	1955	1956	1957	1958	1959	1960
Legal Harvest	90*	104*	140	229	203	320
Average Fawns	no data	1.75	1.56	1.27	1.90	1.91

*No antlerless season these years.

More Harvest Needed at Daniel Boone

The herd at Daniel Boone seems to be in generally poor condition. There has been a steady decline in fawn production since 1956, and hunter harvests to date have not approached the level needed to improve the situation.

	1955	1956	1957	1958	1959	1960
Legal Harvest	105*	161*	246	324	245	212
Average Fawns	no data	1.75	1.67	1.42	1.20	.88**

*No antlerless season these years.
**Warm fall and late rutting season may have also affected this figure.

Mt. Mitchell Herd Underharvested

Like the Daniel Boone herd, the Mt. Mitchell deer appear to be underharvested. The Mt. Mitchell herd apparently reached a state of chronic overpopulation before collections were begun, and the present level of hunter harvest has not been high enough to restore a balance between the herd and the range.

	1955	1956	1957	1958	1959	1960
Legal Harvest	83*	105*	150	196	160	165
Average Fawns	no data	1.25	1.32	.55	1.44	.85**

*No antlerless season these years.
**Warm fall and late rutting season may have also affected this figure.

Misleading Information from Pisgah

There is strong evidence of poor fawn production on this grandfather of the management areas, but the case is weakened by the inadequate number of ovaries gathered from Pisgah. The violent swing from an excellent to a poor fawn crop in the period of one year is thought to be misleading. A true picture of herd fertility probably is not yet available. Increased efforts to gather greater numbers of ovaries and better information on Pisgah are planned.

	1955	1956	1957	1958	1959	1960
Legal Harvest	199*	356*	415	415	468	398
Average Fawns	no data	no data	2.00	1.13	1.00	.83**

*No antlerless season these years.
**Warm fall and late rutting season may have also affected this figure.

Fair to Good at the Sandhills

Fawn production from the Sandhills seems to lie between fair and good. There is doubt as to the exact status of the herd because of differences in hunting methods and kills on surrounding lands. These may play a much bigger part in controlling the Sandhills herd than is the case on the western areas. There is some indication that fawn production improved following the increased harvests on 1958 and 1959.

	1956	1957	1958	1959	1960
Legal Harvest	21*	19*	85	459	156
Average Fawns	no data	1.61	1.35	1.70	1.67

*No antlerless season these years.

Ovaries Yielded Other Information

In addition to pinning down the breeding history of specific deer herds, the ovarian studies yielded other useful information. There is ample evidence, for example, that buck hunting cannot reduce the number of males to such a point that any appreciable number of does will not be bred. Ovaries collected in mid-December indicated that more than 90 percent of the adult does had been successfully serviced even in areas with long histories of bucks-only hunting. In addition, it was found that the state's deer herds do not contain any significant number of old barren does. Wild deer rarely live beyond the age of fertility.

In summary, the ovarian studies have added to the store of knowledge necessary for wise management of North Carolina's deer herds. Fawn production has been calculated in terms of fertility and productivity—and a tool for measuring the adequacy of deer harvest in specific areas has been forged. Studies of deer ovaries have taken their place among other applied research projects. But we must remember that there is no magic in ovarian analysis, it is not the cure for all deer management problems. It is only one more step.

Fishing Weather

by Duane Raver

Any fisherman worth his salt should disagree with about half of this story. The other half may help catch a fish sometime.

"YOU didn't catch much, did you?" This question with a built-in answer was the greeting we got when we returned a boat lock key after a half day's fishing last spring. The questioner was a combination caretaker-gardener who apparently knew the fish better than we did. But how did he know that our catch was a bit on the thin side?

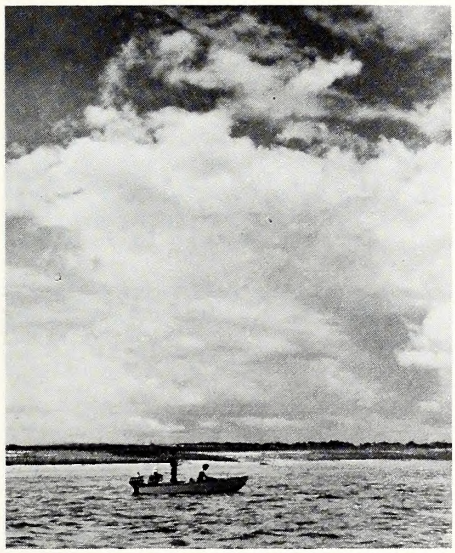
"Wind's from the east," he volunteered before we got in a word. "You won't catch much with this east wind." Coincidence? Well, who can say with certainty? The facts were that the fishing definitely **was** off, and an east breeze **was** blowing. The only way of tying the two together was to have them happen often enough in this sequence.

An East Wind that Blows No Good?

Some fishermen are so positive about this east wind-no fish thing that they simply won't go out under such conditions. Others apparently scoff at it and catch fish anyway. In my book, any wind above about six knots makes fishing rather unpleasant. Now this isn't to say that fish **catching** is poor each time the wind gets up, but rather that casting is more difficult, the boat doesn't behave, the bobber gets lost, and other things soon add up to "let's go home." So far, I have seen little or no correlation between the quality of fishing and wind from any particular direction.

The fact remains that wind does make a difference in fishing. For example, the shore that is receiving the brunt of a wind-pounding is often the best fishing shore since the breeze-agitated water is floating full of washed-up food of various kinds. Walleyes regularly select the windward side of a lake to do their feeding. Don't discount the wind theory entirely, but modify it as your experience dictates.

Many a friendly conversation on barometric pressure and its effect on angling have ended in downright fusses. Viewpoints on this subject are usually rock-ribbed and unswerving. And further they



Jack Dermid

are backed by many actual experiences. There's just no arguing with reliable evidence, but to my way of thinking, you shouldn't stay home just because of a falling barometer unless you simply want to avoid a probable storm. Naturally you wouldn't strike out in the face of a hurricane (or would you?).

Barometer—Affects Fish or Fisherman?

It may seem odd, but in a good many years of rod waving I have yet to check a barometer before, during, or after a fishing trip. So this in itself makes me an expert on the subject. Actually I suspect that barometric pressure has more affect on fishermen than on fish—but I could be wrong.

A recent story in a leading outdoor magazine describes excellent fishing experienced just before a storm reaches the fishing spot. Now here I recall several substantiating incidents. Maybe not enough to establish an authoritative opinion though.

Taking the stormy weather one step further, many anglers have had real good fishing right at the peak of a storm. Hard rain, electrical storms, it didn't seem to matter to the fish. Bad weather, in the form of rain at least, more than likely makes the fishing a little unpleasant but the catching good. A pattern has been established here to the point that a rain usually means better fishing than either before or after the shower.

Rain and Cloud Cover

In river fishing, a heavy rain often means rising water and probably muddy water before long. The "effect" is a little far-fetched, but in these cases the rains help fishing for a matter of a couple of hours and then practically halts it (if artificial lures are being used). So one thing leads to another and the "after effects" set in.

Cloud cover almost always is beneficial to fishing unless it occurs in the very early spring when things are still chilled. Bass feed more heavily particularly on the surface or in shallow water when the light is slightly subdued. Maybe the best combination is an overcast day that's warm but drizzly and fairly calm. But there we go again making rules which the fish probably don't know about and care less.

Of course the lumping together of all fishing in a discussion of this kind is dangerous. Trout very likely respond to different weather conditions more than do king mackerel. Generalizations—when it comes to fishing—offer an out to the author but they aren't real satisfying to the reader.

It's the Temperature of the Water

One thing is for sure in almost all types of fishing; temperature has a great deal to do with angling success. But it's the temperature of the water rather than that of the air. Unless the water is extremely shallow, the temperature will be a day or two behind that of the air. In other words, a sudden drop in air temperature probably won't be reflected in the water temperature for a couple of days. Water warms and cools much more slowly than does air.

The difference in the air temperature and that of the water at any given moment has been credited with altering the behavior of fish. For example, you may have heard the theory that the air must be warmer than the water before bass will jump or even respond to surface lures. There isn't a whole lot of basis for such a statement.

Where do you end up in such a discussion? It may boil down to this: if experience has convinced you that certain weather conditions create certain fishing situations and you have more confidence in one type of weather than in others, by all means stick with it. But in the meantime, check out the angling under various weather situations. You may be missing some good catches.

North Carolina State Library
Raleigh

Of Beasts, Fowle and Fish

By Eddie W. Wilson

WHILE the American Indian had for many centuries found various ways of utilizing the wildlife of North Carolina, explorers from across the sea sent back to England glowing reports of the animals and fishes they saw in this new country.

As early as 1584, Philip Amadas and Arthur Barlowe, the first English visitors to North Carolina, were exploring Roanoke and other islands in Albemarle and Pamlico sounds. Barlowe reported that the woods here were "full of Deere, Conies, Hares and Fowle in incredible abundance." Regarding fish, Barlowe said that one of the natives "fell to fishing, and in less than halfe an houre, he had laden his boate as deepe as it could swimme." He goes on to say that the catch was given the Englishmen in return for the hospitality they had extended to him. The fish here, continues Barlowe, were "the goodliest and best fish in the world, and in greatest abundance." He adds that "Deere skinnes" and leather were exchanged for "merchandize" offered by the Englishmen.

The reports of Amadas and Barlowe resulted in the sending of a fleet with colonists for this new country. Here Ralph Lane was to serve as governor and Thomas Hariot was to write the story of the settlement.

Hariot lists the wildlife under the headings: "Beasts," "Fowle," and "Fish."

Under "Beasts" he lays greatest stress upon "Deere, in some places there are great story;" "Squirels, which are of a grey colour, we have taken and eaten;" "Beares, which are of blacke colour . . good meat."

Of "Fowle" he lists "Turkie cocks and Turkie hennes, Stockdoves, Partridges, Cranes, Hernes, and in Winter great store of Swannes and Geese."

Of "Fish" he says that "For foure months of the yeere, February, March, Aprill and May, there are plenty of Sturgeons. And also in the same months of Herrings, some of the ordinary bignesse of ours in England, but the most part farre greater, of eighteene, twenty inches, and some two foot in length and better; both these kinds of fish in those months are most plentifull, and in best season, which we found to be most delicate and pleasant meat."

He speaks also of "Trouts, Porpoises, Rayes, Oldwives, Mullets, Plaice and very many other sorts of excellent good fish, which we have taken and eaten, whose names I know not but in the countrey language." Continuing he mentions "Oisters," "Muscles," "Scalops," and "many Tortoises both of land and sea kinde . . . very good meat, as also their eggs."

Years later when the colony was under rule of the Lords Proprietors, John Lawson was made Surveyor-General. In his **History of North Carolina,** in reality a narrative descriptive of the country and the hardships and perils endured by the colonists, he tells of being "entertained" by Indians "with a fat boiled Goose. Venison, Raccoon and Ground Nuts. At another time he was made "very welcome with fat barbacued Venison which the Woman of the Cabin took and tore in Pieces with her Teeth, so put it into a Mortar, beating it to Rags, afterwards stews it with Water, and other Ingredients, which makes a very savoury Dish."

According to Lawson, flocks of turkeys ("several hundred in a Gang") became "loathsome" as a steady diet so therefore "One night we killed a Possum which tasted much between young Pork and Veal; their Fat being as white as any I ever saw." He found "the Tail of a Bever a choice Food." For him the "Flesh of the Bear is very good and nourishing, and not inferior to the beat Pork in Taste. It stands betwixt Beef and Pork, and the young Cubs are a Dish for the greatest Epicure living. I prefer their Flesh before any Beef, Veal, Pork or Muton."

Thus the early writers have paid homage to North Carolina wildlife.

This early etching is from a drawing made during one of the first exploratory trips to North Carolina's coast. From their dug-out canoes Indians are shown reaping a plentiful harvest of fish from one of the shallow coastal sounds. In the background others are tending fish traps and spearing fish with gigs similar to those of today.

N. C. Department of Archives and History

Exploring New Hanover's Fishing Reef

Photo Short
by Jack Dermid

Equipped with Aqua-lungs and wearing rubber suits, divers roll backwards off the boat into the 60-foot water at the reef.

WHEN an exploration team surveyed New Hanover County's artificial fishing reef last June they were delighted by what they found. The reef, consisting of old automobile and school bus bodies and worn out appliances, was solidly in place despite some rough winter weather. Barnacles and other sea creatures had attached themselves to the metal in numbers, and schools of fish had discovered the shelter afforded by the wrecks.

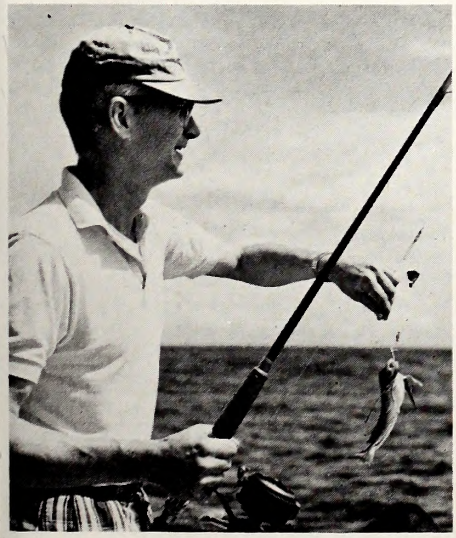
One diver looked inside an automobile body to see a school of about 50 pigfish swim out the other side.

The reef was explored barely six months after the first barge load of junk was dumped eight miles offshore between Masonboro Inlet and Carolina Beach. Leaders of the New Hanover Fishing Reef Association, sponsors of the cooperative community project designed to produce better fishing in the area, wanted to know just what was going on beneath the waves.

Skin divers from Camp Lejeune's Sea Urchins Skin Diving Club volunteered to take a look and take underwater photos if conditions were suitable. Two boats, the **Ace-Hi** and the **Fantasy III,** took the divers and topside observers to the buoy marking the northern end of the reef.

The sea was too murky for photography, but the divers were able to bring up the encouraging report that the reef was fast becoming an underwater "seafood platter." It was attracting the small creatures which attract the bottom fish which in turn will lure big game fish such as king mackeral, amberjack, and more.

For a detailed report on the establishment and plans for the future development of the reef, **Wildlife's** readers may refer to their March, 1961, issue.



Kenneth Sprunt, president of the New Hanover Fishing Reef Association, tried his luck; boated sea robin on first cast.

A piece of scrap metal from the reef was peppered with a new colony of barnacles. Some were already as large as navy beans.

Although the water was too murky to take underwater pictures, the divers reported seeing several schools of bottom fish.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Eleven-man Commission Takes Office

North Carolina's first 11-man Wildlife Resources Commission has been appointed, sworn in, and is now serving. The Commission is composed of a member from each of nine statutory districts plus two members at large. Following are members in numerical order of districts and at large:

District 1, O. L. Woodhouse, Grandy; District 2, Robert M. Carr, Wallace; District 3, G. E. Beal, Red Oak; District 4, James A. Bridger, Bladenboro; District 5, Dickson Phillips, Chapel Hill; District 6, Thurman Briggs, Lexington; District 7, R. Floyd Crouse, Sparta; District 8, Lee L. Powers, Lake Lure; District 9, Oscar Ledford, Franklin. Commissioners at large are: Phil W. Ellis, Holly Springs, and Walter Lambeth, Jr., Charlotte. At its July 31 meeting the Commission elected Robert M. Carr, Chairman, James A. Bridger, Vice Chairman, and G. E. Beal, Secretary.

Dove, Marsh Hen Seasons Set

Tarheel hunters will start unloading shells at various game species at noon September 9 when the first segment of a split season on mourning doves opens. First segment ends October 14; second begins December 13, ends January 15. Shooting hours noon to sunset, daily bag 12, possession limit 24 after first day's shooting. No change in other rules regarding doves.

Marsh hen season opens with first high "moon" tide September 20, and ends November 28. Bag limits are 25 daily or in possession for sora rails, 15 daily, 30 in possession for gallinules, Virginia and clapper rails, singly or in aggregate. Shooting hours are from sunrise to sunset.

Public Hearings For Fishing Regulations

To give Tarheel fresh-water anglers a chance to express views regarding 1962 fishing regulations, the Wildlife Resources Commission will hold three public hearings in September. First is set for September 21, Washington, N. C.; second, September 26 at Salisbury; and third, September 28 at Asheville. All of the hearings are scheduled for 7:30 P.M. at the courthouses of the cities involved.

Commission Meet Scheduled September 6, 7

The Wildlife Resources Commission is scheduled to meet in Raleigh on September 6 and 7. A possible important item on the agenda will be selecting dates and bag limits for the 1961-1962 waterfowl season from a framework structure offered by the U. S. Fish and Wildlife Service.

During summer and early fall, bears feed on blueberries, blackberries, and other wild fruits. Later they fatten on acorns, nuts, apples and grasses. Throughout the year they eat insects, carrion, roots, herbs and leaves, and some small mammals.

Black Bear through the Year

Text by John Oberheu, Illustrations by Wallace Hughes

THE black bear lives chiefly in the mountain and Coastal Plains sections of North Carolina. Nowhere is he common, but because of his far-ranging habits bear signs are often seen in the mountains and isolated sections of the east. Far from being a sociable animal, the black bear is usually seen alone after he reaches maturity.

In the fall of the year when his coat is prime, his fur is a glossy black. There is a brown patch on the muzzle, and sometimes a white patch on his chest. In North Carolina the average adult bear is about 60 inches long and stands as high as 30 inches at the shoulder. A large black bear may weigh 500 pounds or more, but the average is much less. The normal life span is 12 to 15 years in the wild.

The bear usually walks with a slow lumbering gait, but can run for short distances at speeds up to 25 miles per hour. Although clumsy in appearance, the bear can stand on his hind legs—and often does, when he wants a better view of his surroundings. An agile tree climber, the bear may even perch on a limb to observe his domain. Almost as much at home in the water as on the ground, the bear may spend hours cooling himself in a trout stream during hot summer.

Many legends of the American Indians attest to the strength and courage of the black bear, and his relatives in Europe and elsewhere figure prominently in the folklore. As one example, the Latin name of the Big Dipper, constellation of the northern sky, is **Ursa Major,** or Big Bear.

Black Bear through the Year

Cubs are born in winter and stay with their mother through the first year. The father has nothing to do with his offspring. A mother bear with cubs is dangerous and should be avoided.

A female bear doesn't ordinarily breed until the summer of her third year, and then will have cubs only every other year. There may be as many as four cubs, but most often there are two. Cubs are born in late January when the mother is in semi-hibernation, and weigh only 8 to 10 ounces at birth. Tiny, blind, helpless and almost hairless, the cubs alternately suckle and sleep until warm weather comes. Normally the cubs remain with their mother until they are a year and a half old, but only see their father by accident.

During their first summer the cubs are the clowns of the forest, tumbling, wrestling and chasing each other up and down trees. However cute and harmless they may seem, cubs should not be molested—a mother bear is one of the most jealous of forest parents. Though normally shy and inoffensive, an enraged mother bear is a formidable opponent.

The mother takes excellent care of her young, disciplining them strictly. At the slightest sign of danger she sends them up a tree, and expects them to remain until she returns. It is said that when the female is ready to leave her young, she abandons them up a tree. As hunger and thirst overcome their strong urge to remain where she left them they descend to face the world without the support of their parent.

The most common hazards faced by young cubs are those of self-hunting dogs and well-meaning people who think they do cubs a favor by putting them in cages.

Bears have few natural enemies, but free-ranging dogs and illegal hunting can take their toll. The young are more vulnerable to predation, as is the case with all other wild animals.

Some bears have an appetite for sweet corn and other f crops when natural foods are scarce. Serious depredations usually be stopped by removing one or two individual anin

In more northern parts of their range bears often supplement their diets with fish caught during spawning runs. In North Carolina black bears only occasionally compete with anglers.

BLACK bears will eat almost anything, plant or animal, but are inclined to be vegetarians. Although the preferred foods are roots, berries, nuts, grasses, leaves and insects, scarcity of these foods may sharpen their appetite for meat.

Once having experienced a dinner of fresh meat, bears in areas of livestock production sometimes become habitual livestock killers. Sheep and pigs rate high, and the bears often drag their victims for several miles before making a meal. Livestock damage by bears is uncommon, however, and usually can be halted by removing one or two problem animals.

Bears have a notorious sweet tooth, and sometimes create problems by raiding bee hives. Despite angry swarms of bees the bears will topple hives and help themselves to the precious honey.

In searching for food bears will claw open rotten logs seeking grubs and worms. Sometimes they raid unoccupied vacation cabins, and on one occasion two half-grown cubs left the interior of a cabin covered with the contents of a 50-pound sack of flour which they had burst open.

Mainstay of the black bear's diet are roots and nuts, but bears in parks and other popular tourist areas have become attracted to free handouts and often raid campsites and garbage dumps.

During coldest weather the black bear goes into a prolonged sleep in a simple den under a log or in a cave. Not a true hibernation, the dozing bear is easily awakened by warm sun.

The marking post or bear tree is sometimes connected with the breeding season, when a bear marks the limit of his territory. Often the bear claws the tree to measure and record his reach.

For those who pursue it, bear hunting is unequalled for ruggedness, excitement and satisfaction. The race may last two days, with several hounds lost to the bear's huge paws.

Black Bear through the Year

HUNTING black bear is one of the most challenging of outdoor sports. Seeking the big bruin on steep mountain slopes covered with tangles of undergrowth, or pursuing him through almost impenetrable Coastal Plain swamps, the hunter is often led on a thrilling chase made even more difficult by the terrain chosen by the bear.

It is estimated that the annual kill in North Carolina approaches 1,000—but the number of man-days far exceeds this number. Most bear hunting is done by parties using dogs, and every member of the party can consider the hunt a success if one brings home a bear. Much of the bear hunting in western North Carolina is done on the wildlife management areas, particularly at Santeetlah, Sherwood, Pisgah and Harmon Den.

The individual black bear's home range, the area that he roams during a year, is not known precisely. Some believe that the average home range has a radius of five miles, which would mean about 80 square miles. Some older males may range over a radius of 15 miles, which would cover an area of 700 square miles. There is considerable overlapping of ranges between individual bears.

For the hunter, the music of the hounds, the excitement of the chase, and the anticipation of waiting for a shot—all combine to challenge him to pit his skill against one of our most prized of big game animals.

Jack Dermid

Managed Hunt Report 1960-61

by Frank B. Barick
Chief, Game Division

LAST year more hunters than ever before took part in the Wildlife Commission's management area hunts. Greatest increases in participation were on the antlerless deer hunts—where 63 percent more hunters showed up—and the archery hunts, with 27 percent more bowmen registered. Waterfowl hunts increased 13 percent, small game 9 percent, and the buck deer still hunts 5 percent. Interest in raccoon hunts dropped 35 percent.

Hunter success varied, with some game showing no change, others showing considerable increases, and others dropping. Bear and boar kills held at almost exactly the same levels as the previous year—40 bears each year, and 62 boar in '59-'60 compared to 61 boar in '60-'61.

Total deer kills dropped slightly, from 1,892 to 1,815. Most of the decrease was on western buck hunts, plagued with unusual hot weather and a delayed rutting season. Another part of the decrease in total deer kill came from the sharp reduction in the number of antlerless deer harvested on the Sandhills. These decreases were made up to some extent by antlerless kills on some other areas and by the increased archery hunt harvest.

The total small game harvest was up 33 percent over the previous season, with a kill of 15,912 compared to 11,978. Squirrels accounted for most of this increase with 12,460 taken. Also bagged were 605 grouse, 146 rabbits, 411 quail and 2,290 doves. The take of raccoon was less than half the

previous year's harvest—only 230 compared to 464. Waterfowl kills were up 28 percent, with 5,989 compared to 4,690 in '59-'60. Most of the increase were Canada geese.

Santeetlah, Home of the Wild Boar

Santeetlah, the westernmost of our wildlife management areas, is the home of the wild boar, center of interest for most of the local hunters. Sixteen party dog-hunts took 11 of these as well as 5 bears. On Wednesday and Saturdays still hunts conducted during the party dog-hunt season, 26 wild boar were taken in 473 man-days of hunting. During the two-week still hunt period, 6 deer and 17 boar were taken in 356 hunter-days. Small hunters took 36 grouse and 34 squirrels in 124 hunter-days, and 16 raccoons were taken by 27 parties of night hunters.

Ideal Range at Fires Creek

A recently completed logging operation at Fires Creek has created nearly ideal range for deer on this small refuge in northern Clay County. Wild hogs were reported to have moved out of the refuge in search of additional mast just prior to the still hunts, and only seven were harvested by hunters. However, 64 deer were taken by 1,051 buck hunters and 72 antlerless deer were taken by 303 doe hunters. Small game hunters took 217 grouse and 54 squirrels in 280 hunter-days and 10 parties took 13 raccoons.

No Hogs at Standing Indian

Standing Indian, in southern Macon County, produced 45 bucks for 866 hunter-days, and 76 antlerless deer in 363 hunter-days. During 432 archer-days, the kill consisted of 17 deer, 10 squirrels, and 4 grouse. No hogs were taken on either hunt this year. Small game hunters took 118 squirrels and 46 grouse in 157 hunter-days and 31 parties of raccoon hunters bagged 23 ringtails.

Limited Hunting at Wayah Bald

Relatively few hunters visited Wayah Bald, but these made a showing consistent with previous years. This season's take included 13 bucks in 244 big game hunter-days, 53 squirrels and 18 grouse in 80 hunter-days, and 7 raccoons by night-hunting parties.

Sherwood, High Rough Country

A large portion of this management unit, in southern Haywood County, lies at elevations above 4,000 feet. Perhaps for this reason a record kill of buck deer was produced at a time when kills on many other areas were comparatively low. A total of 112 bucks was bagged in 1,942 hunter-days. This high rough country also harbors many black bears and 15 parties of dog-hunters brought in 7 this year. Small game hunters bagged 128 rabbits, 70 grouse, and 18 squirrels in 344 hunter-days.

Pisgah, Largest of the Areas

Pisgah, the largest of the wildlife management areas, occupies parts of Buncombe, Henderson and Transylvania counties. In spite of its size (100,000 acres), it frequently outproduces some of the smaller acreas on an acre-for-acre basis. On the party dog-hunts for bears, two parties took 2 bears but during this period the 35 still-hunters who tried for bear came out empty-handed. During the deer still hunts 207 bucks and 22 bears were taken in 6,886 man-days of hunting. On the three-day wilderness hunts, 15 bucks and 1 bear were taken in 823 man-days. In the two-day doe season, 164 antlerless deer were taken by 1,289 party-day hunters, and 568 archers took 12 deer in their early season. Small game hunts yielded 8,212 squirrels and 146 grouse in 3,103 hunter-days, and 248 parties of raccoon hunters took 111 of this species.

Harmon Den One of the Newer Areas

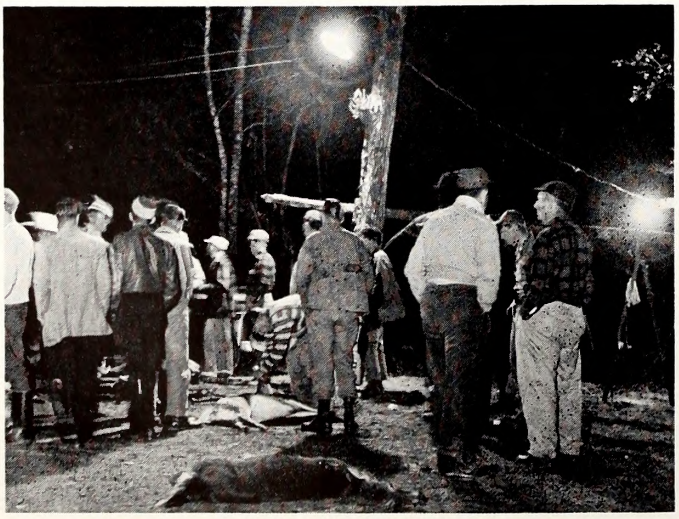
Harmon Den is one of the newer areas and is located in the northern end of Haywood County, just east of the Great Smoky Mountains National Park. Last season's kill included 3 bears by 4 parties of dog-hunters, 24 bucks in 546 hunter-days and 12 anterless deer in 98 hunter-days. Small game hunters bagged 104 squirrels and 4 grouse in 52 man-days.

Rich Laurel Split in Two Segments

This area lies in two separate segments along the Tennessee line in Madison County. Totals of 16 bucks and 3 antlerless deer were taken in 594 and 96 hunter-days, respectively. Small game hunters took 581 squirrels and 29 grouse in 191 days of hunting.

Check-out time at Uwharrie during a managed deer hunt brings a group of successful hunters to the weighing station. Careful checks are made of results of management area hunts.

Jack Dermid



Small game hunting on management areas provide an opportunity for sportsmen who don't own land. Quail, doves, rabbits and squirrels are popular targets during small game hunts.

Mt. Mitchell a Favorite Spot

Lying in Yancey and McDowell counties and bisected by the Blue Ridge Parkway, the Mt. Mitchell area has long been a favorite spot with many deer hunters. During the buck hunts 76 deer were taken in 2,043 man-days of hunting, plus 9 more in 194 man-days of wilderness hunting. During the one part-day doe hunt 350 hunters took 44 anterless deer. During the two-week archery season, bowmen took 36 deer of either sex.

Flat Top Underhunted in Parts

The acreage of the Flat Top area is about equally divided between Mitchell and Yancey counties. Due to inaccessibility, some portions in both counties are considerably underhunted. During the past season 39 bucks were harvested in 813 hunter-days. Small game hunters bagged 630 squirrels and 24 grouse in 261 man-days and 23 parties of raccoon hunters took 8 raccoons.

Daniel Boone Herd Increases

Spread over portions of Avery, Caldwell and Burke counties, Daniel Boone has experienced a pronounced increase in its deer herd over the past few years. During the past hunting season 106 buck deer were taken in 3,812 hunter-days and 9 more on 417 man-days of wilderness hunting. These figures indicate that the warm fall and late rut depressed hunting success on this area more than on most of the others. During the part-day antlerless season 664 hunters took 69 deer, and 28 deer of either sex were taken on 546 days of archery hunting. Small game hunters took 2,397 squirrels and 13 grouse in 805 man-days of hunting. On the raccoon hunts, 52 parties bagged 33 coons.

South Mountains Presents Enigma

The South Mountains area is located in southern Burke County. It presents somewhat of an enigma since it has yielded but very few of its moderate deer population to hunters. It is felt that one of the primary reasons for this poor showing has been a lack of an adequate interior road system, and we are bending every effort toward solving this difficulty. During the past season only one buck was taken in the course of 215 man-days of hunting. Small game hunters took 183 squirrels and 2 grouse while 12 parties of raccoon hunters were successful in taking 10 animals.

Cooperating with the U. S. Fish and Wildlife Service, the Wildlife Commission manages waterfowl huntng on vast Lake Mattamuskeet. Canada geese helped increase last year's harvest.

Thurmond Chatham on the Blue Ridge

This area is located on the east side of the Blue Ridge in northern Wilkes County. While only half of its 12,000-acre area is open to hunting, it nevertheless produced 33 buck deer in 989 man-days of hunting. Small game hunters took 68 squirrels in 36 man-days and 5 parties took 9 raccoons.

No Records From Caswell

Permits were not required on Caswell and we have no record of number of hunters or total kill. Reports from the area indicate, however, that substantial numbers of hunters from Piedmont population centers used the area to hunt quail, squirrel, rabbits, turkeys, and doves. All portions of the area except the designated turkey refuge are open to hunting in accordance with state-wide seasons and bag limits.

Uwharrie Produces New Record

This highly favored Piedmont area in Montgomery County again produced a record number of kills. During the two-week archery season, 1,675 bowmen took 53 deer. After a week's rest, the area yielded 122 bucks to 2,356 gun hunters. This was followed by two part-days of either sex gun hunts which produced another 145 deer. And deer drives conducted a few months later indicated a higher residual population than the year before.

Sandhills Spread Out

The Sandhills (in the counties of Richmond, Scotland and Moore) is the largest of the central wildlife management areas, consisting of 32 separate tracts ranging from 3 acres to over 20,000. Deer are hunted with dogs on this area and 24 were taken in 675 man-days of hunting. On the one part-day either-sex hunt, 1,077 hunters checked in at noon and then checked out 132 deer a few hours later. Small game hunters took 364 quail, 18 rabbits and 8 squirrels in 263 hunter-days. During the dove hunts which were held on Wednesdays and Saturdays, 467 hunters took 2,218 doves.

Holly Shelter Inpenetrable

Located in the east-central portion of Pender County, Holly Shelter is one of the oldest State-owned wildlife areas. While both still- and dog-hunting have been used on this area, the inpenetrable pocosin vegetation has always consituted a serious impediment to hunting. During the past season 343 party hunters using dogs took 16 deer and 141 still-hunters took 5. On the two bow hunting days 43 archers got several shots but no deer.

Croatan in Second Season

The Croatan area is located at the juncture of Cartaret, Craven and Jones counties. The past year was its second open season, during which 185 party dog-hunters took 10 deer and 44 still-hunters took 2. Dove hunts were also scheduled which netted 72 birds to 31 hunters.

Lake Mattamuskeet for Waterfowl

In spite of the reduced season and bag limit, waterfowl kills were better at Lake Mattamuskeet during the past season than the one before, primarily as a result of a large goose population. A total of 4,389 hunter-days was recorded, during which 2,869 ducks, 3,020 Canada geese, and 100 coots were taken on this joint State-Federal refuge.

The Skipper

Conducted by Duane Raver

UNLESS the boating public wakes up soon, the number of fatalities during the 1961 season will exceed those for the murderous 1960 boating season. The answer to this water mayhem still eludes the safety specialists. An informed boating public certainly is a necessary ingredient for success; an aware public—one that recognizes that a problem exists with **them**—is a vital necessity in curbing boating accidents.

Boating safety experts search their experiences for new ways to tell the boater how to stay alive afloat; then brains are racked for ways to make sure that the skipper **does** these things. It's a frustrating business to these specialists to learn of boating accidents that were caused by some bit of operator negligence when only a week or so before warnings had been issued and stories written about these very things.

The boater is deluged with do's and don't for his sport. Some of these things make sense to him, some don't. Some he files mentally away and perhaps will remember them when and if the time arrives. Yet most of these life-saving hints he simply discards, either at once or most certainly when they interfere with his "sport." He might wear his life jacket when it's convenient; or buy a fire extinguisher if there is a little money left over at the end of the month; he might even cut his passenger list to four instead of six, unless the other two simply insist on going.

Harsh words? Oh, if only they were harsh enough to make the skipper think.

Don't let a peaceful outing afloat turn into tragedy. It can unless you the skipper use common sense and courtesy always.

Duane Raver

Small Craft School

From the day the Wildlife Resources Commission was given the responsibility of administering the Boating Safety Act, it has been the Commission's aim to have its Wildlife Protection staff expertly trained in boating safety. Several intensive training schools have been held with the help of the American National Red Cross, the Armed Services and the Institute of Government. During some of the regional training sessions, selected personnel from the Protection Division have been sent so that they might return to their districts and train others.

Recently Wildlife Patrolmen Ray A. Overcash, and L. L. Lineberry attended the Red Cross Small Craft School held at Camp Green Cove near Tuxedo, N. C. They successfully completed the two-week session specializing in boat handling and boat safety. They received high praise from E. C. Jones, the school director, and returned to their districts to pass on their skills to others.

Duane Raver

The staff of the Wildlife Protection Division has been trained in water safety as well as boat enforcement procedures.

Lose a Boat?

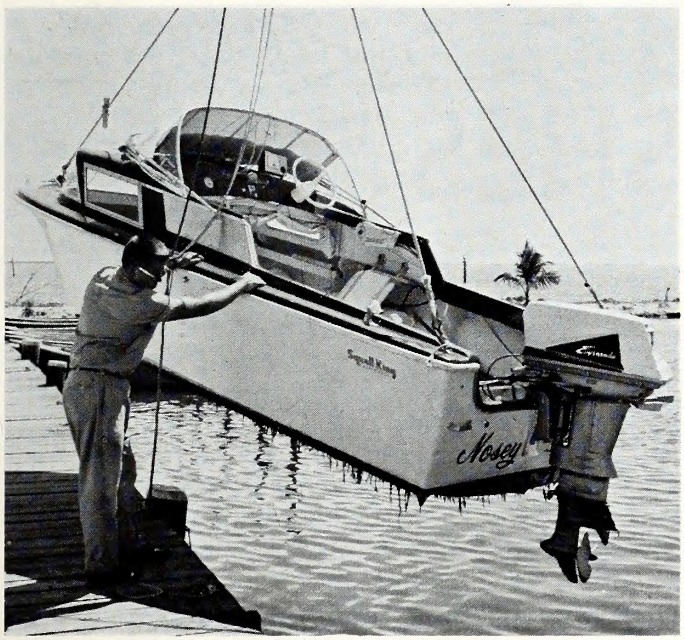
From time to time, particularly during the hurricane season, boats come up missing. For example, last year right after Hurricane (you should pardon the expression) Donna, the Wildlife Commission issued word that assistance would be given owners of lost, numbered boats. Boat identity in this case was helped materially by the required boat numbers.

Some boats simply drift away from unsecure moorings, others may be blown halfway out of the county. Should your numbered craft disappear, the Wildlife Commission stands ready to do all that it can to help locate it. Notify the Commission as quickly as possible, including your local protector, giving boat number, identifying markings, serial number (of both boat and motor), where and when it was lost, and other details of its disappearance.

Motorboat Performance

Since high horsepower outboard motors became popular,

continuous maximum boat performance is expected by most outboard owners. Peak performance can mean greater safety under some conditions. Very often, however, these owners fail to recognize one of the more important factors causing



Evinrude Motors

It takes more than a knowledge of how to fill a gas tank to have a safe, efficient boat. Check your craft's condition now.

decreased performance characteristics—the **condition** of the boat bottom.

Boats moored in the water for any period of time, whether in salt or fresh water, develop marine growths or scum on the bottom. This condition has a marked effect on boat speed.

Engineers at Evinrude Motors revealed the results of tests performed on a 16-foot fiberglassed plywood boat which was allowed to remain in salt water. At the end of 30 days, the speed with one man aboard had dropped more than eight miles an hour. With a six-man load, the speed dropped more than 10 miles per hour in 20 days, and the boat would no longer plane.

An identical test in fresh water showed a surprising loss of six miles per hour with a two-man load and 10 miles per hour with a six-man load in just 30 days. In each case the hull was thoroughly cleaned at the conclusion of the test and original performance restored.

From these results it is apparent that a smooth, clean bottom is imperative for maximum boat performance. Whenever a boat is left at a mooring for any period of time, it should be removed from the water and the hull completely cleaned every three weeks. This is true whether in salt or fresh water.

Federal Boating Regulations

It shouldn't be news to any boater that the U. S. Coast Guard enforces federal boating regulations on navigable waters of the United States. These laws served as the model for many states when local laws were enacted. However a few fundamental differences in federal and North Carolina boating laws exist.

Bear in mind that federal boating regulations pertain to any boat with **any size motor.** North Carolina law requires certain equipment on boats powered by machinery of more than ten horsepower. In other words, you are subject to Coast Guard action on navigable water unless your motorboat is equipped according to federal law, regardless of the size of your craft's power plant.

It is the aim of the Coast Guard to see that the laws under its jurisdiction are obeyed. Further, its aim is to make the waterways safer places. In striving for these objectives, areas of constant neglect on the part of the boater are often observed. To correct these areas, certain "interpretive rulings" are handed down from time to time. In order to make State regulations coincide as closely as possible to those of the Federal government, the Wildlife Commission must adopt these rulings.

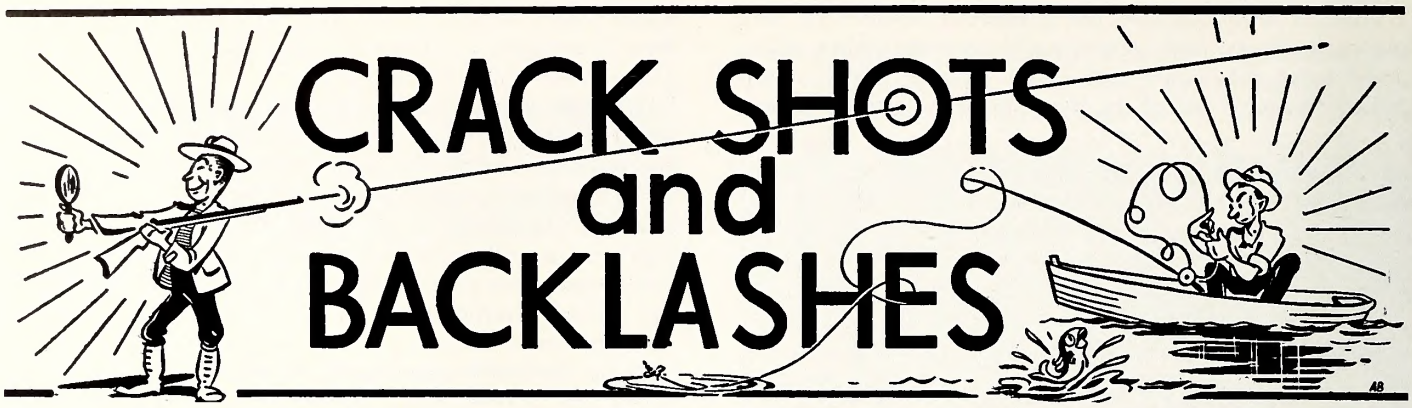
From the very beginning of the North Carolina Boating Safety Act, a fundamental necessity has been the registering and numbering of all boats powered by machinery of more than ten horsepower. These numbers are essential for indentification of the vessel. And from the very beginning many of the numbers have been improperly displayed. One area of confusion is the use of white or reflective letters and numerals bordered in black. These simply do not meet legal specifications unless they are used on a black or very dark background and the white or reflective portion **(not counting the black border)** is then at least three inches in overall height. These letters and numerals do not meet legal requirements when they are displayed on a white or light background. Spacing also has been badly misused by many boaters.

Title 46 Code of Federal Regulations, Section 171.05-2 "provides that there shall be a hyphen or space between the prefix letters and the numerals and between the numerals and the suffix letters. This space is to equal in width to any letter except 'I' or any number except '1'. There are no alternatives to these specifications. Boat numbers displayed like this: NC406 K, or this NC 406K, or any way except like this: NC 406 K, or this NC-406-K, simply are not legally displayed.

Affixing a number to a boat makes this craft no safer than it was before. However, a numbering system is provided for in State and Federal law and is an integral part of the Boating Safety Act. If you haven't already received a copy of the revised laws pertaining to boat equipment and operation, write the Wildlife Commission for one. Then read it. If there are things in it that are not clear to you, write and ask us about them. Be sure that you understand every provision in the law.

You may see U. S. Coast Guard craft such as this one, operating on your favorite water. They carry many safety devices.

Duane Raver



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Although September is a month of abundance as far as natural food for wildlife species is concerned, it is not too early to be thinking about plans for feeding songbirds next winter. If you will read the following release from the U. S. Fish and Wildlife Service, you will come to the conclusion that songbirds worked for you all summer in keeping your crops or garden relatively safe from insect pests. You owe these birds a favor.

Birds and Bugs

The peak of the nesting season in the United States for the uncounted millions of small song and insectivorous birds is the month of June. These are the feathered creatures which, unknowingly to them, are on the side of man in an endless battle against the insect hordes. This is because the nestlings of these birds have capacities and appetites for insect food which is nothing short of fantastic. This is pointed out by biologists of the Bureau of Sport Fisheries and Wildlife of the Fish and Wildlife Service which is charged by Federal law with responsibility for the protection and regulation of the country's migratory bird populations. The United States has treaties with Canada and Mexico for the protection of migratory birds, many of which spend part of each year in all three countries.

According to the biologists, an individual nestling of many species of song birds is daily fed a ration of insects that weighs more than does the nestling itself. Their growth rate is phenomenally rapid; most species reach adult weight in two to three weeks. The majority of species have broods containing three or four young that remain in the nest for only about two weeks. Many species have two or three broods per season. It all adds up to a lot of hungry mouths to be literally stuffed with insects by diligent, hard-working parent birds.

They can't do the entire job of insect control, but birds help immeasurably in protecting agricultural and forest crops.

Granted that thousands of tons of insects are consumed daily by birds, what does it really mean in terms of effects on insect pests? Bureau biologists explain that birds cannot prevent insect outbreaks, but that they do constantly exert a repressive influence on the numbers of insects. In other words, without birds insect problems would be a lot worse than they are now.

However, it is not a case of all birds being faultless in their relations to farmers. The experts are quick to point out that some birds, at some times and in some places, do cause damage to farm crops, especially to small grains. The black-birds in particular come in for criticism because of their depredations on rice, corn, and sorghum. The economic loss that results from such depredations must be weighed against the good that these birds do in destroying pests.

But this problem of crop damage by birds is another story that will be left for another time. To get down to cases, just what is the magnitude of the effect of birds upon pests?

Recently, at the Delta National Wildlife Refuge in Louisiana, an outbreak of army worms appeared on the refuge lawn. Within a period of 36 hours the numbers of these pests became so great that it was impossible to walk on the grass without stepping on dozens of them. However, grackles and red-winged blackbirds soon gathered in large numbers. Within another 36 hours not a single worm could be found.

Some years ago, on the White River National Forest in Colorado, entomologists estimated that woodpecker activity was responsible for the destruction of as much as 90 percent of the overwintering larvae of the Englemann spruce beetle, a pest that is a continual threat to the valuable Englemann spruce forest of the West. In Canada, an authority has estimated that birds destroy half of the damaging tussock moth larvae that hatch in forests there. The same authority estimates that over 90 percent of the tussock moth egg masses laid above snow line are partially or wholly destroyed by birds.

In Florida, competent entomologists have reported that in a normal season the birds are plentiful enough to keep the celery leaf tier, a serious pest of celery, en-

tirely under control in isolated celery fields and in celery fields adjoining woodlands.

Authorities in Massachusetts, New York, and New Hampshire have independently credited birds as being the most effective aid to man in controlling the codling moth. In New Hampshire it was estimated that birds destroyed as high as 87 percent of the overwintering larvae of this pest.

And so goes the record of case histories of birds and bugs. No doubt about it, birds are a significant help to man in curbing insect pests and insect plagues.

Birds alone, however, are not numerous enough to do the kind of insect control job that man now needs. The demands made on our modern agriculture require some supplementing of nature's biological controls. The available supplementary methods and materials are not always what they ought to be, but improvements are constantly being sought. Wildlife biologists share with research entomologists the ideal and hope that safer, more efficient, economical, and selective methods of control can be developed for all major pests—methods that will complement rather than destroy the natural controls. In such thinking and planning there is an important place for birds in the future of America.

Stocking Story

Dr. Edward C. Kinnery, Chief, West Virginia Division of Fish Management, made this cogent comment, in *West Virginia Conservation* for April, about fish stocking programs. It is worth noting:

"The public, in general, judges the quality of the state's fish management program by the numbers of fish that are stocked annually. Most fishery biologists, however, share the almost opposite point of view, that the stockings are regarded as an admission that the management programs have failed. We have failed to maintain favorable aquatic environments which would have made many of the stockings unnecessary.

Unfortunately, it is seldom possible to substitute stocking on a satisfactory basis for proper maintenance or improvement of habitat. And the more that funds become diverted to stocking, there is less for environmental improvement. Moreover, commensurate increases in fish stocks and fishing quality seldom result.

"For example, during 1952 and 1953, West Virginia stocked 13,651 marked and tagged smallmouth bass in the Elk River. To date, only seven of the bass are known to have been caught. Those seven bass, therefore, cost the states license buyers about $180 apiece."

Dr. Kinney also reported that during 1952 through 1955, New Jersey biologists stocked 16,200 marked fingerling bass in one of their bass streams. Considerable effort was made to locate those bass after their release. The stream was seined, trap-netted, and sampled with fish toxicants. A thorough creel census was conducted. Through June of 1958, however, only one of those stocked bass was found.

"It is hard fact that stocking is not a cure-all for fish-ills. It is only one of several tools available to fishery workers. Experience shows conclusively that stocking should be confined to one of these desirable situations, outlined by Dr. Kinney, and generally accepted by professional fish conservationists:

1. Interim trout stocking in the mountain waters until the environment can be improved so that natural reproduction will be increased.
2. New lakes.
3. Reclaimed lakes and streams.
4. The introduction of desirable species that are not present in a particular body of water."

Stocking does have a role in fishery management. Only thorough study and intelligent planning can make it a useful tool rather than a costly blind alley. It is dangerous and impractical to rely on stocking alone to provide good fishing.

Snakes Alive

DEAR SIRS: I would like to know if blacksnakes are useful snakes, and do they kill poisonous snakes? Are brown lizards useful, and are lizards with purple undersides dangerous to people? We have recently moved to the country and would like to know whether to kill these or not. Also, are brown toads harmful to gardens, or do they just eat insects? MRS. JOSEPH WAITE JR., LOWGAP.

Blacksnakes are neither black nor white as far as their record goes. They are nonpoisonous, and are useful in keeping mice and other harmful rodents under control. They are known to kill poisonous snakes, but on the other hand they are notorious robbers of birds' nests and chicken egg thieves.

No North Carolina lizards are poisonous, and because they feed almost exclusively on insects, they

PROTECTOR OF THE MONTH

John O. Edwards

The Duplin County Wildlife Protector, John O. Edwards, was born in Bladen County, June 21, 1931. He attended the public schools in Bladen County until he moved to Tampa, Florida where he completed his education.

Prior to his employment with the North Carolina Wildlife Resources Commission, he served three years in the U. S. Navy aboard the Submarine U. S. Tusk. He was employed as a wildlife protector on July 1, 1953, after having completed the pre-service training school for wildlife protectors at the Institute of Government in Chapel Hill. He has also completed four in-service training schools.

He is a member of St. John's Masonic Lodge #13 at Kenansville, the Duplin County Law Enforcement Association, the North Carolina Protectors' Benefit Association, the Southeastern States Law Enforcement Association and he is a certified hunter safety instructor. John is married to the former Jacqueline M. Sandburn of Portland, Michigan and they have two children, Shirley and David. The Edwards' reside in Kenansville.

ENFORCEMENT RECORD FOR JUNE

HUNTING & FISHING:	
Persons checked	37,078
Total prosecutions	705
Total convictions	686
Total cases not guity	5
Total cases nol prossed	14
Total cases dismissed	0
Total fines collected	$1,915.60
Total costs collected	$5,529.30
BOATING:	
Boats checked	6,889
Total prosecutions	364
Total convictions	353
Total cases not guilty	5
Total cases nol prossed	6
Total fines collected	$1,093.50
Total costs collected	$3,006.55

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

are generally considered to be beneficial. Brown toads are worth their weight many times over in the harmful insects they devour. They are among the gardener's best friends.

Venus Flytrap

DEAR SIRS: I am interested in locating a book or books which contain information concerning Venus flytrap, which we understand grows wild in Eastern North Carolina. Also that a former Colonial Governor of North Carolina, Arthur Dobbs in January 1760 wrote about discovering same and that Charles Darwin in 1873 described it.

Can you give me any suggestions which might enable me to locate such a book or books? FRED KELLY, MOUNTAIN HOME.

We regret very much that we cannot give you a definite reference with regard to books giving information on the Venus flytrap. We would suggest that you write to the North Carolina Library Commission for any assistance they might be able to give you.

European Deer Here?

DEAR SIRS: The present requirement for 10,000 contiguous acres to stock deer leaves out many excellent deer grazing areas and is partly responsible for the extraordinarily low hunter success rate on deer in this state. These facts are undeniable and not subject to argument. Nonetheless, I must concur with your policy. My query concerns the desirability of importation of the Reh (or Roe) deer of Europe. This, as you know, is a small (30 to 50 lb.) deer having flavorful meat and varied antler formation. The latter permits selective shooting of older bucks by the average hunter with only minimal indoctrination, and the relatively small range of the deer makes it exceptionally adaptable to small farms. I have seen herds of 8 or 10 deer range on the same farm for several years, and this was considered the rule. In Germany, where I saw most of these deer, the climate, terrain, and farming methods are very similar to those in western North Carolina. While I assume the suggestion to import these deer to selected North Carolina farms has been made many times, I wonder what your opinion is concerning the idea.

Secondly, what is the status of the Chinese chestnut as food for deer, bear, and squirrels? Will it grow satisfactorily and do you advise owners of small farms, such as myself, to plant them? Where may I obtain the seedlings, and directions for planting?

Lastly, would you please send me the plans for squirrel boxes and instructions in using them?

Hoping that you will have the time to answer my questions, I am JOHN R. TAYLOR, M.D., ENKA.

We appreciate this opportunity to comment on the thoughts expressed in your letter in regard to the importation of roe deer. It is quite likely that this species could adapt to conditions in western North Carolina, at least in regard to food and cover. We very seriously question, however, whether it would be able to survive the many free-ranging and stray dogs common to most sections of the state. In this regard it would probably have more difficulty than our native white-tails, the distribution of which is largely determined by this one factor. If we could solve this dog problem, we could have deer in every county of North Carolina.

In regard to your other questions: the Chinese chestnut produces a very fine fruit which would be highly palatable to most species of wildlife. It is however, a domestic rather than a wild species and requires considerable care. There is no evidence to date that it can be introduced as a natural component of our "wild" vegetation so as to replace the original native chestnut. Seeds or seedlings for domestic use may be secured from Dr. J. W. Edel, Prospect Plantation, Grasonville, Maryland.

We are enclosing some prepared material on squirrel nest boxes. We appreciate very much your interest in wildlife conservation. Please call on us if we can be of further help. FRANK B. BARICK.

Wildlife PRODUCES for NORTH CAROLINA

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Gigging Non-game Fish

DEAR SIRS: Would like to ask why is it against the law to gig in North Carolina. With a gig you miss, I say, 60 percent of your strikes, yet you can cast with a plug with six hooks on it. And again not many people would gig, for it is work and not many people would want to go to the trouble. EUGENE E. PETIT, HENDERSONVILLE.

If by "gigging" you mean spearing fish with a gig, it is possible to get from your local wildlife protector a permit to use a gig to take non-game species of fish.

Quail Fan

DEAR SIRS: The articles on hunting are always appreciated. Please keep stressing the importance of cover and food for wildlife, especially quail. Some of the articles along these lines are so good that they should be carried in each issue. The article some time ago "What is A Quail Hunter," was tops. That's me exactly. I'm not a quail hunter for meat but for the recreation and sport of seeing good dogs work. I would like very much to see an advertising department added to Wildlife. ALBERT H. McDOWELL, ALBEMARLE.

Much thought has been given to the selling ad space in our magazine, but we prefer to get along without it as long as we can. The sale of advertising space would bring in a nice income, but it would place a state-sponsored magazine in competition with private enterprise—Ed.

Small Trout Up Yonder

DEAR SIRS: In the June issue of Wildlife the story "Backyard Bluegills" was a real pleasure to read, because I enjoy fishing for the scrappy bluegills very much.

I am from Brunswick County, North Carolina, but stationed at Caribou, Maine, with the U. S. Army Air Defense Command, and have been for the past two years, and have missed the fishing very much. I do a very little fishing up here because these small trout just cannot equal the fishing of North Carolina.

I have been receiving the small but wonderful magazine Wildlife for the past three years and enjoy it very much, so keep up the good work. SP-4 AULCEY J. EICHORN, LORING A.F.B. MAINE.

Thank you very much for the kind words, but maybe someone in Maine will tell you where to try for some of their Atlantic salmon. Don't let them spoil you, though—come back to good old North Carolina bream fishing.—ED.

The beaver has long been called "Nature's engineer" and it takes only a few moments study of one of their dams to see that the title is well-deserved. The structure pictured here was carefully built on a remote Wilkes County trout stream.

To the Rescue!

DEAR SIRS: In the past I have written you several letters more or less of a comical nature, but this time I am in dead earnest.

May the 8th I rented a boat at Cumberland Memorial Park, and tried a little fly fishing. I had been out on the lake about two hours, when this small boat I was using struck a snag thereby cocking the boat up on one side causing it to fill rapidly with water and throwing me overboard. I swam and dragged the boat about 100 feet when it hung up on some bushes that were not showing above the water. I was then about 50 feet from the shore and could not move it any farther.

There I called for help as I did not want to lose my fishing gear. Two of your wildlife protectors were not too far up the lake and came to my rescue with their two boats, and helped me to the shore, and also saved my gear and the boat. These were two fine gentlemen and rendered me valuable assistance, for which I want to thank them in your Magazine. They are Gilmer S. Forbis and Phillip Buckner.

I want to give these two men great praise for helping me. I probably could have gotten out of the lake, but did not have that to worry about. These two fine fellows took over and saw me safely ashore gear and all. They even loaded my gear on the car and told me "better luck next time." I didn't know they were wildlife protectors until I tried to give them a nice tip for their services.

They refused my tip and said they were supposed to do things of this kind.

They certainly are due all the commendation that I can offer. My hat is off to the Wildlife Protectors of North Carolina, and especially those two fine gentlemen. Please publish this letter as I want them to have all the honor for saving me and my fishing gear. Thanks a million for men like these. R. L. BROWN, CHARLOTTE.

And thanks a million for people who appreciate the job they are doing. Our men are all too often "cussed out," and are therefore appreciative of kind words.—Ed.

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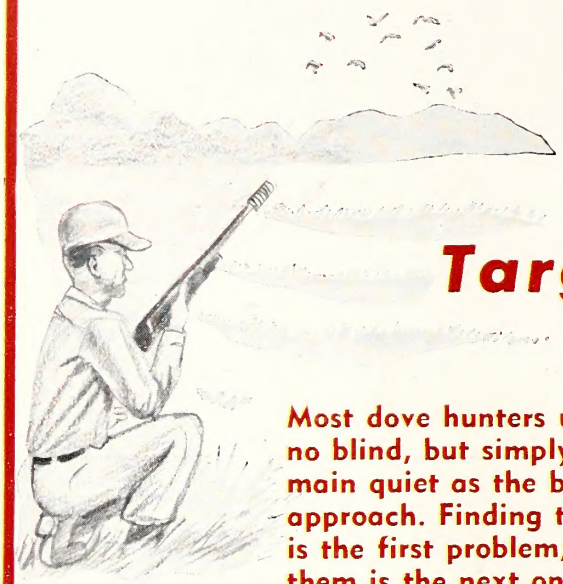


Target : DOVES

Most dove hunters use no blind, but simply remain quiet as the birds approach. Finding the doves is the first problem; hitting them is the next one.

It is **LEGAL** to hunt migratory game birds –

Over grain fields seeded in a normal agricultural manner.

Over standing crops.

Over standing grain or other feed crops grazed by livestock, example — hogged down corn fields.

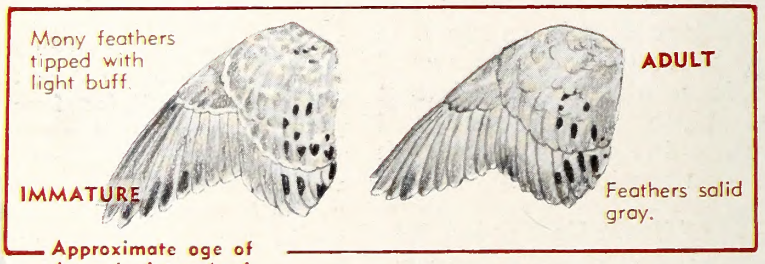
Over grain found scattered solely as the result of a normal agriculturol harvest.

It is **ILLEGAL** to hunt migratory game birds –

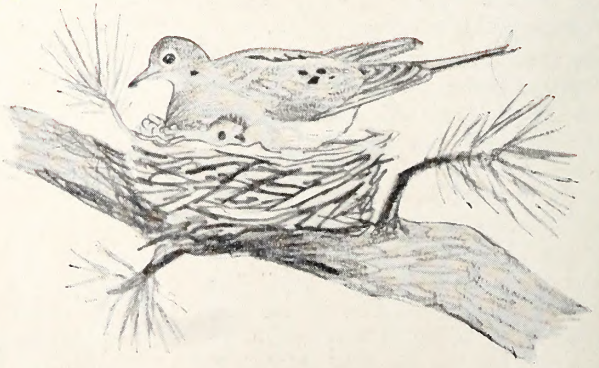
Over bait — or by means, aid and use of bait — or on or over any area where grain, salt or other feed capable of luring or attracting such birds is placed, deposited, distributed or scattered except as the result of a normal agricultural planting or harvest.

Over feed lots — where grain is present as a result of feeding livestock.

Over areas where grain crops have been cut down, dragged down, knocked down, burned over or otherwise manipulated and left on the ground.



Approximate age of doves is determined by examining the wing feather colors.



The mourning dove presents one of the most difficult wingshots of any feathered game. North Carolina's split season begins September 9, ending October 14. The second part runs from December 13 through January 15. Hours are 12 noon until sunset. Bag limit is 12 birds per day.

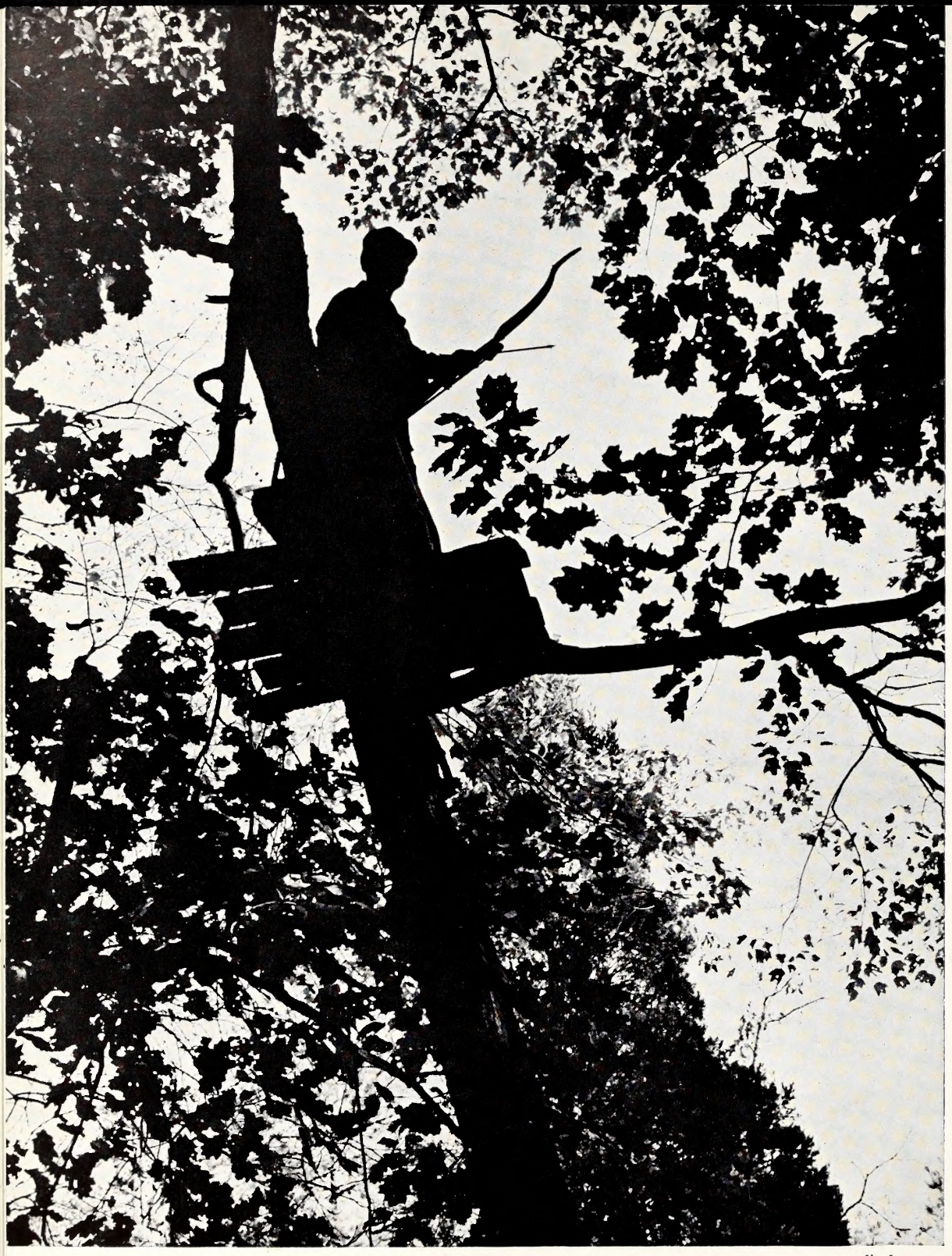
PRINTED BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

N.C. Doc.
North Carolina State Library
Raleigh

Wildlife in north carolina

ten cents

october 1961



Jim Lee

Robin Hood

Today's archer, like the Rabin Haad af yesteryear, depends an baw and arraw to dawn his quarry. Doing it the hard way? Well, last year an the managed hunts archers equalled the success af gun hunters—ane of every 28 gun and baw hunters was successful in bringing hame a deer. A rapidly grawing spart, archery has come ta be a significant part af the managed hunt pragram. This bawman awaits a deer in his tree blind at the Uwharrie Wildlife Management Area, favarite hunting grounds far madern archers.

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

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Governor

North Carolina Wildlife Resources Commission

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COVER

Our front cover for October sets the theme of this issue, hunting safety. Inside you'll find an article on the problem, too many hunting accidents. And you'll find one of the answers, a hunter safety training course. Bill Ballard's cover sets the theme also for an autumn full of bright promise for the hunter, and you'll find the annual hunting outlook inside. What better way is there to start the season's hunting than to spend a little while cleaning the old shotgun, and perhaps a few words with the youngster about the facts of life for those who follow the call of field and forest?

Wildlife In North Carolina recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

The Devil and Frisco Too

by Cam MacRae

FRISCO? He and Bill went up to the new Cowan's Ford dam to locate some hot fishing holes before Lake Norman fills up. They're gonna make a map."

"Oh, they're going to make a map so they can find the fish by it."

"No. So they can find the boat. It sinks easy. You ever see Frisco's boat? It leaks so bad, and has such low sides on it that fish sometimes swim across it without knowing it. He likes it that way because he says he can sneak up on the fish. They don't know it's a boat."

"Really low in the water, huh?"

"Low? Bill says when it's pulled up on the bank it looks like it's buried in the mud."

Bill ought to know because he was with him when Frisco caught the water skier. Some of his friends say it might have been an accident, but when you ask Bill about it he turns kinda' purple. It happened in this wise.

They were out casting top water lures around the coves of Catawba Lake, and Bill swears his Hula Popper rode higher in the water than the boat did, when all of a sudden a hot rod boat artist whipped a water skier dern near across the middle of the boat. Kaloosh! It sank.

They say as each bubble came up cuss words would pop out. Frisco pulled the boat out on the shore and almost dried out the motor with his cussing, let the water leak out the holes in the boat, and paddled back out to resume fishing.

Zooooom! Here they came again, this time on one ski. The wave was three feet high when Frisco cast over it twenty feet in front of the skier. Whop! Man what a strike! The reel screamed, the bow of the boat went down like the head of a bucking bronco, and Bill had a grandstand seat high up on the stern to watch the derndest water skiing exhibition ever put on in Mecklenburg County. It looked like a head-on crash of the Queen Mary, an express train, and a B-52 bomber.

First the skier went into a violent pin-wheel maneuver which was somewhat blurred by the speed and spray, then a sixty-mile-an-hour swan dive which ended in a belly buster that sounded like a jet breaking the sound barrier. He bounced off the water about ten feet high and just seemed to disintegrate, legs and arms and head and feet going off in different directions. During this gyration he finally turned loose the tow rope, thus remaining in the air much longer. But that just prolonged the agony. This time his re-entry was the worst of the three. It churned the water white for yards around, and from the middle a geyser erupted with a mush-room cloud on top.

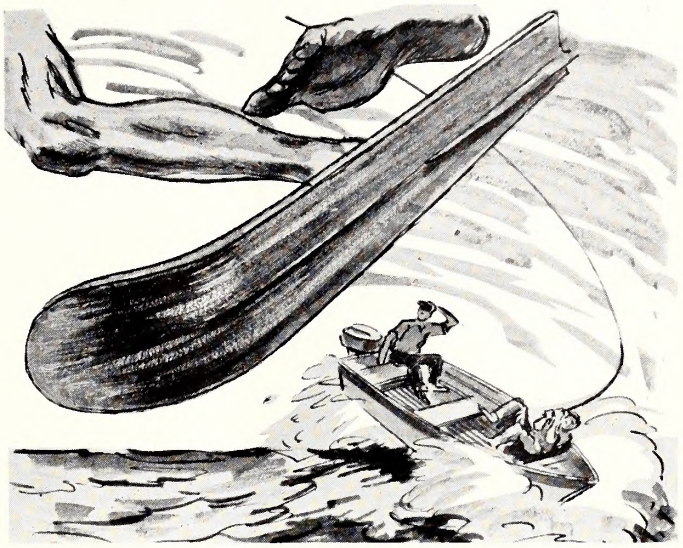
This last collision was mercifully hidden from Frisco and Bill by five feet of water. They were on the bottom again.

Back ashore it didn't take long for the water to leak out of the boat. It wouldn't hold much.

But this experience kinda' made it hard for Frisco to get anybody to go fishing with him. So he compromised. He agreed with four of his buddies—Dennison, Francis, Pryor, and Bill again—to go down to the coast and charter a boat with high sides on it and go deep sea fishing. The captain assured them there was very little water skiing in the Gulf Stream.

It was a beautiful day, the sun was warm and bright, and so were the fish. So they didn't bite. This discouraged the others, but not Frisco. He is a dedicated fisherman. So while they cooled off with long, tall iced-tea glasses smelling like the dew of Scotland, Frisco manned the fighting chair trolling for a record marlin. But even the most ardent fisher-men are susceptible to a warm sun and a gently rocking boat. Frisco went to sleep.

Now you might say it was his mistake. And again you might blame Bill, or the dew of Scotland. But we must be tolerant with our dear fishing buddies. Anyway, Bill couldn't help it. He slipped back to the stern of the boat, slowly pulled in sleeping Frisco's line, removed the bait, and securely tied a bucket on it. An ordinary ten-quart pail. But this bucket would never be ordinary again. It is mounted on the wall of a fishing cabin right now on Catawba Lake, shot full of holes. Bill let the line with the bucket on it slip out behind the boat



which was trolling at about eight knots.

Wham! Frisco's rod jerked him straight up and his reel screamed like he had a water skier on it.

"Stop the boat! Reverse! Reel in your lines! Captain, Captain! I've got a big one on!"

"Help him! Help Frisco before he's pulled out of the boat!"

"Help me be durned! I'll fight him myself! Might be a record marlin!"

The star drag wouldn't hold against the terrific pull, but Frisco was madly cranking away.

The skipper, who was onto the dastardly trick, had stop-ped the engines, and as the boat lost speed Frisco was able to gain a little line on the bucket, pumping and winding.

"He'll go two hundred pounds if he'll go an ounce!" Frisco estimated.

The skipper was maneuvering the boat so that it appeared that the fish was going one way and then the other.

The bucket was going down.

"Look out! He's sounding, Frisco!"

"Don't let him go to the bottom!"

"I've stopped him! He's tiring. I'm gaining on him a little bit."

Suddenly a wave lifted the bucket to the surface and half of it showed above water.

"Lordy! Did you see that mouth! He'll go three hundred pounds easy!" Frisco was getting real happy.

"Get ready to gaff him! Two of you grab the gaff!"

"Don't give him a slack line, Frisco! Pull, Frisco, pull!"

Frisco was pulling with all his might.

"Anybody got a camera? Lordy! Get a picture of this fish!"

Dern right Francis had a camera ready. This picture would be worth $1000.

Just then the bow ducked in a trough, heaving the stern high. Frisco was leaning hard backward with a mighty pull. Swoosh! The bucket came over the stern, Frisco stared straight into its mouth, and Francis tripped the shutter.

One of the greatest pictures ever taken of a fisherman now lies under three hundred feet of water near the Gulf Stream off Southport. This is where Frisco threw the camera.

Some may condemn Bill. Others may forgive him. But not Frisco.

If Bill goes to Hell he'll have to fight the Devil and Frisco too.

Too Many Hunting Accidents

by William L. Hamnett

Illustrations by Duane Raver

NORTH Carolina hunters last year had one casualty for every 8,000 licensed hunters. Considering the many provisions under which people may legally hunt without a license, hunting is a remarkably safe sport.

Yet last year there were 50 hunting casualties—50 people killed or wounded in pursuit of their sport. Fifty hunters failed to observe the rules of safe gun handling, were careless or were simply inexperienced.

Hunting is unlike any other activity —hunters habitually go about their sport armed with tools designed to kill. Yet, if we take a positive approach, we must realize that a shotgun or rifle is just as safe as an automobile or an airplane. Neither means of transportation are dangerous when sitting still, nor is a firearm dangerous when in storage. And just as a careless or drunken driver can turn a safe automobile into a lethel weapon, so can a careless hunter cause tragedy with his gun.

Learning from Others' Mistakes

Let's see if we can learn something from the accidents that occurred during the 1960-61 hunting season. Each year the county wildlife protectors are provided with uniform hunting accident report forms, and they are expected to file reports on every hunting accident in which a gun plays a role. From these reports we analyze the information, seeking to find means of preventing accidents in the future.

During last year's hunting season there were 12 killed and 38 injured. Perhaps by looking at the figures, you can decide for yourself why these accidents happened. And perhaps you'll be able to recognize yourself in one of these situations—when perhaps your life hung by a thread.

Were age and experience important factors in the accident rate? There were 30 accidents involving a shooter and a victim, and 20 self-inflicted wounds. Of the 30 shooters, 18 were under 20 years of age. And of those accidentally shooting themselves, eight of the 20 were under 20 years of age. Thus it's apparent

that more than half the trigger-pullers were under 20. And there's another aspect of the teen-aged problem. Counting victims of another's carelessness and those who pulled their own triggers, exactly half the victims, 25, were over 20 and half were under.

As for experience, 44 percent of the shooters had less than two years of hunting experience—but 27 percent had over 10 years experience. Another 16 percent had between three and five years of hunting. Although we can see that the inexperienced hunter ranks high in the accident list, there's no basis for complacency just because you've hunted for a few years—or for a few decades, for that matter.

"But the Gun Just Went Off!"

Did they mean to do it? Of course it wouldn't be an accident if the shooter purposely aimed at the victim and fired. But it is revealing to look at the picture from the viewpoint of intentional and unintentional discharge. Intentional discharge means that the shooter meant to hit one thing and instead hit another—himself or another hunter. Unintentional discharge means that the shooter didn't intend for the gun to fire at all.

Eight fatalities, seven of them teen-aged, were results of unintentional firing of the gun. The other four deaths came from shooters mistaking their victims for game species, or as the result of horse-play. Two of these were teen-agers. These fatalities could have been prevented had the shooter known his gun, handled it properly, and aimed it at a proper target.

Tarheels Use Shotguns

North Carolina is primarily a shotgun state. In 44 reports the weapon was a shotgun, and this type of firearm figured in 11 of the 12 fatalities. The weapon was a rifle in five cases, and three of these involved .22's. In one case included in the total, the instrument of death was a tree, illegally felled by a coon hunter. The tree landed on the hunter.

Actually one can't say that one type of gun is safer than another, expecially in view of the distance from shooter to victim. In 46 of the cases, the victim was within 50 yards of the shooter. In 31 instances the distance from the gun to the injured person was less than 10 yards. At such close ranges, a shotgun load has little chance to spread or lose velocity.

Types of Hunting Involved

What were these victims hunting, or about to hunt, when they were added to the statistics? Two-thirds (34) were hunting small game. Of the total, 35 percent were hunting rabbits and 32 percent were hunting squirrels. Seven of the fatalities were squirrel hunting, and four were rabbit hunting.

Another small game activity, quail hunting, brought only four casualties. Eight were injured on deer hunts, two while dove hunting and two were duck hunting. Since rabbits and squirrels are our most popular game species, it stands to reason that more hunters mean more chances.

Some of the feats performed by rabbit and squirrel hunters are remarkable displays of carelessness, such as holding the muzzle of the gun while using it to club a wounded animal to death. Others stood in line of fire as the shooter swung on his target, lost their footing or slipped while kicking the quarry from a brush pile, or they tripped on field stubble or vines.

Time of Day Important

One significant factor uncovered by the study of last season's casualties is time of day. Apparently fatigue crept up on many hunters, dulling their reactions. There were 38 accidents reported between noon and 5:00 p.m., but only nine accidents during the morning hours. Ten fatalities occurred between 2:00 p.m. and 5:00 p.m.

Common Sense One Answer

There are multitudes of accidents that can befall the human being, and hunting is way down the list. By comparison, your sport of hunting is quite safe. It is tragic when a hunting fatality occurs, but too often the accident could have been prevented had common sense been used. Experience is a good teacher—but not at the expense of someone becoming a hunting statistic.

SO YOU WANT TO BE A CASUALTY!

These hunting accidents, although they may seem odd, unusual, silly, stupid, or just plain tragic, have all occurred in our state during the past year.

One of a group of coon hunters chopped down a tree with a coon in it. As a result of this illegal practice, the tree fell on the hunter, and killed him.

A hunter shook a tree to dislodge squirrels from the upper branches. The hunter's dog rushed by him, tripped over the shotgun and caused it to fire. Result: sore arm and abdomen.

A hunter took a nap, shotgun in hand. The gun discharged while he was asleep. Result: four toes instead of five.

Demonstrating how he had just missed a big deer to a friend, a hunter discharged his high-powered rifle. Result: a one-legged friend.

Fishing at the base of a moss-festooned tree beside a river, the victim was mistaken for a squirrel by a hunter drifting past in a boat. Result: 21 shotgun pellets in the fisherman's chest.

Walking in front of his companion in the woods, a hunter was shot in the back by his friend—who had been playing with the hammer on his shotgun. Result: shotgun pellets had to be removed, hunting pants had to be replaced.

Demonstrating how a semi-automatic shotgun would recoil, a hunter put the stock on the ground and his hand over the barrel. Result: a hole in his hand.

A hunter cocked his shotgun for a flight of approaching doves, but the doves stayed out of range. Moving to another area, he stumbled and fell in the field. Result: elbow surgery.

A grouse hunter allowed his young and inexperienced son to follow him. A bird flew up. Result: shot scattered up and down the father's back.

A shooter heard and saw bushes moving and thought it was a squirrel. He fired in the direction of the sound. Result: a 71-year-old man died.

A young hunter tried to force a squirrel from a log, using his gun butt to prod the animal. Apparently he forgot the other barrel was loaded. Result: fatal.

A squirrel hunter held his gun by the muzzle and tried to club a wounded animal to death. Result: fatal.

Checking hunters in a field, a wildlife protector stepped through a honeysuckle thicket as a quail flushed. Result: a shot in the chin, another in the arm. A blouse with 40 pellets in it.

While holding his gun a hunter tried to kick a rabbit out of the brush and slipped. Result: shot in ankle and later ankle was amputated.

Bringing up the end of a line of four hunters walking a logging road, a hunter tripped and fell. Result: three unhappy companions showered with pellets.

One Answer

Hunter Safety Training

by Amos C. Newson
Long Creek Rifle and Pistol Club
Illustrations by Duane Raver

A year ago the Wildlife Commission officially adopted the National Rifle Association's Hunter Safety Program. Through this program there have already been 465 certified as hunter safety instructors, and they in turn have trained 2,498 students in the safe and proper use of firearms for hunting. The instructors, all volunteers, come from every walk of life—five women are included on the roster of instructors. On the local level some programs have been operating for several years. The following article describes the program of the Long Creek Rifle and Pistol Club, which was honored recently by the American Association for Conservation Information for its outstanding program of hunter safety instruction for its members.

IN North Carolina we're hearing more and more about firearms safety and hunter safety training. With the endorsement and full cooperation of the Wildlife Resources Commission, a growing number of organizations are taking part in training young hunters to be safe hunters.

Hunter safety training is nothing new, in some respects. When pioneer families depended on game to supply meat for the table, nearly every youngster had to become familiar with the family's muzzle-loader. And stories of pioneer women who defended their homes and children from marauding Indians remind us that men were not alone in once making this a nation of marksmen.

Today there's a different picture. All too often today the father of the household himself is unfamiliar with the safe handling of firearms, and frequently a boy or girl eager to learn safe hunting has no opportunity at home. And learning by trial and error with loaded weapons too often can be tragically expensive.

More than a decade ago the National Rifle Association took steps to provide today's youth with a formal program of hunter safety training. NRA is a national organization of firearms enthusiasts, with a trained reserve of people capable of conducting this program.

To handle the growing need for formal courses of instruction, NRA launched its program in New York. Now similar instruction is available all over the United States and in several other countries.

How successful is the program? According to one estimate, in areas where the program has been in operation the rate of gun casualties has been reduced by 25% over a period of ten years.

Who teaches the courses? Instructors are sportsmen who have by experience and study passed the required NRA examination and have become certified hunter safety instructors. Many of these men and women—yes, women are also working in this program—have not stopped with this certification but have gone on to become instructors in markmanship. Although the primary goal of the program is safe hunting, supplementary training can develop the youngster into an expert marksman.

A Pioneer Program in North Carolina

One rifle club in North Carolina has been conducting NRA hunter safety training for almost ten years. The Long Creek Rifle and Pistol Club was chartered by NRA in 1952, and almost immediately we recognized the need for a sound program of training young hunters. Thus we organized a junior section of the club, and obtained a NRA charter for the Junior Nimrod Rifle Club. Mothers and wives also became interested, and so now we have the Huntress Gun Club as well.

We began the program at Long Creek with only one qualified instructor. Since then we have added 16 certified instructors, so the jobs of preparation and instruction can be divided among several individuals. In all we have trained more than 800 boys and girls—and at the same time they've been learning about hunter safety, we've been learning about them.

We've followed the basic pattern of the NRA training in our own courses, finding this a highly effective means of teaching the information necessary for our students to earn the Safe Hunter Badge of NRA.

Getting the Students

Before you can begin a program you must have a group of interested students. We've found several ways of attracting youngsters, including newspaper advertisements, contacts with Boy Scout and Explorer Scout groups, science classes in junior and senior high schools, and colleges. There are other sources too, such as church groups and summer camps.

We've made talks before women's clubs, civic clubs, PTA's, and many other organizations of parents whose children we wanted to reach. And before long, we've found, there is an amazing response from boys and girls wanting to take the course.

Getting the Information Across

The actual course is divided into four sessions of one hour each. NRA recommends that the course be given in four sessions on different days, and suggests that more than just the minimum time be allowed for each session. Only as a last resort should all of the instruction be given in a single day.

The first session of the NRA course provides familiarization with guns and safe gun handling techniques. The instructor, with help from assistants, demonstrates the proper method of crossing fences, getting in and out of automobiles, and correct gun handling procedures in other situations.

The second session involves actual firing. Each student should be equipped with a .22 caliber rifle and at least five rounds of ammunition. Although indoor ranges can be used, we've found it much better to take the student outdoors for the range sessions. During the first session on the range the students learn range commands, and spend most of their time in practicing sighting and trigger squeeze with empty guns. Actual firing is in the prone position.

The third session further develops range techniques, and again the student fires five rounds. During this session, however, the student fires in the standing position. The range firing gives the instructor and his coaches an opportunity to observe the students, and they can correct errors in gun handling technique on the spot.

The fourth session is an examination, divided into two parts. In the first part students answer questions in a written test of their knowledge, with common sense rated higher than small technicalities. In the second part of the examination students again go to the range, this time to demonstrate their proficiency with their own guns if possible. Although no particular score is required, students must show that their firing is reasonably accurate. In the test, students fire five rounds with the rifle or two rounds with the shotgun.

Rounding Out the Program

In the Long Creek Club we have found that additional time spent on certain phases is well worth while. For example, we've found many students who need special attention because one eye is much stronger than the other. Where a right-handed student has a master right eye, everything's fine. But for a right-hander whose left eye is dominant, shooting a rifle is quite a problem. Some have been successful in switching to the other shoulder when using the rifle. Although this is a handicap with the rifle, there seems to be little trouble in training these students in shotgun shooting.

We devote some time to dry firing, using the triangulation method to teach the pupil to see the proper sight picture.

The club has enough .22 caliber bolt-action rifles to handle our program, so for safety's sake we don't encourage the students to bring their own guns unless they are of the proper type.

And we are able to provide the student with experience both with the rifle and with the shotgun. We use both trap and skeet fields to familiarize the students with wing shooting.

Handling the Class

Although one instructor can handle any reasonable number of students in the classroom sessions, a maximum of 10 to 12 youngsters should make up a class on the range. We have been able to increase the number by using a number of coaches and assistant instructors, however.

Registration cards are provided in the NRA instructor's kit. Although the registration card doesn't provide a place for the parent's signature, it's a good idea to have a clear understanding with parents about what the course involves and just what is expected from each student. Students receive personal copies of the NRA Hunter Safety Handbook, and a small charge is often made for this and for their NRA Safe Hunter Badge.

Keeping the attention of active boys and girls in the classroom can be a problem, as every teacher knows. We've found it helpful to sprinkle lectures with anecdotes illustrating key points. Taken from actual hunting experiences, these stories—some tragic, some near tragic, and some humorous—will keep their attention during the indoor sessions. We also use film strips and charts to illustrate the lectures.

On the Firing Line

Contrasted to the classroom work, the range phase of the program is far more exciting for the student. Here the instructor must watch carefully and take every precaution to make sure that students don't get too enthusiastic—especially when handling live ammunition.

As mentioned before, the club supplies .22 caliber bolt-action rifles for range practice. These are single-shot rifles, equipped with peep sights. We don't permit semi-automatic rifles, and not more than one round can be loaded at a time.

Coaches accompany the pupils to the firing line, and supervise them at all times. With no more than five pupils for each coach, we can be sure that chances of accidents are slim. Two rules are rigidly enforced. Muzzles must be kept pointed down range, and except during actual firing all bolts must be open.

Our range is equipped with shooting mats for the prone position. We encourage students to use slings when firing in this position, and helping the youngsters to adjust their slings is another job for the coaches. On the firing line we can work with students to improve their positions and their breathing. Some students look pretty hopeless to begin with, but patience, criticism and praise will work wonders with the rankest beginner.

On the shotgun range we provide guns of various gauges, since we judge each student by body weight and assign him a gun of the proper size. If a student gets hurt by the kick of his first shot and starts batting his eyes, you may have placed the student at a disadvantage that will take years to overcome.

Final Words of Caution

There are many pitfalls awaiting the instructor, and we've found that parents present as many problems as the youngsters. Pressure from parents to certify youngsters who aren't ready is one of the toughest problems. But the instructor owes it to himself and to the other students to withhold approval from boys and girls who have demonstrated some lack of understanding. It is up to the instructor to decide when he can say, "Here is a safe hunter; he will not hurt himself or any other hunter."

Spoiled and pampered children make the most difficult students. Sometimes overly doting parents ruin the latent ability shown by a youngster who does well with a .410 shotgun by immediately buying him a semi-automatic 12-gauge gun. The gun turns out to be too much for the child to handle. Not only is such a shotgun dangerous in the hands of a youngster, but the heavy weight may cause him to start flinching and thus the child becomes afraid of the gun.

We caution all students about old guns loaded with modern ammunition. Then a relative may give the child an old and antiquated shotgun and insist that he use it. What is the boy going to do? He is on the spot, and it's up to the instructor to be firm. When this happens in one of our courses, we bar the student from the course until Grandpa puts his old gun back where it belongs—on the wall.

Following the Rules

We conclude our classes with a written examination of 25 questions. Three questions must be answered correctly or the the student fails the course. To pass, he must memorize these three and understand them thoroughly.

1. Treat every gun as if it were loaded.
2. Always point the muzzle in a safe direction.
3. Be sure of your target.

And we always add one refinement to these rules: "Be sure of your target and also what is behind it."

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

More Coons for Western Counties

Raccoons for restocking western N. C. counties will again be available from the Wildlife Resources Commission in its cooperative raccoon restoration program. Persons or groups wishing to obtain coons for restocking should contact Game Division, Wildlife Resources Commission, Box 2919, Raleigh. A charge of $5.00 per animal will be made at the source of supply, $2.50 of which will be repaid by the Commission to cooperating groups or individuals.

Butner Deer Hunts Scheduled

The Army National Guard will conduct public deer hunts on the military reservation at Butner, N. C., November 20, 21, and 22. Applications to participate in the hunts may be made at any N. C. National Guard Armory not later than October 13. A fee of $8.00 per day will be charged, which will cover a noonday meal and hunting dogs, provided by the Guard.

Major Hunting Seasons Open in October

October marks the opening of shooting seasons on Tarheel big game, including deer, bear, and wild boar, plus small game such as coons, possums, ruffed grouse, and squirrels in all but 30 counties in the central part of the state. The season on rabbits, quail, and wild turkey opens Thanksgiving Day, November 23.

Tide Schedule for Marsh Hen Shooting

Eleven days in October will have coastal tides high enough to produce good marsh hen (rail, gallinule, sora) shooting in salt water marshes. Tides of five feet or more are considered necessary for good gunning. Following are dates, tide levels and hours: Oct. 11, 4.9 feet at 8:29 a.m.; Oct. 12, 4.9 feet at 9:06 a.m.; Oct. 13, 4.9 feet at 9:48 a.m.; Oct. 14, 4.9 feet at 10:35 a.m.; Oct. 19, 5.0 feet at 3:52 p.m.; Oct. 20, 5.1 feet at 4:52 p.m.; Oct. 23, 5.6 feet at 7:01 a.m.; Oct. 24, 5.7 feet at 7:51 a.m.; Oct. 25, 5.6 feet at 8:39 a.m.; Oct. 26, 5.4 feet at 9:26 a.m.; and Oct. 27, 5.2 feet at 10:12 a.m. Times given are for the Southport area. Add 10 minutes for the Beaufort area.

Correction on Canada Goose Season

Some sections of Wildlife's pages go to press early because of multi-color printing. After some 30,000 copies had been run we caught an error on page 23, under the picture of the Canada geese. The correct closing date for the Canada goose season is January 8, not January 9 as it appears in magazines printed in the early part of the run.

Hunting Outlook for 1961-62

By Clyde P. Patton
Executive Director
Photos by Jack Dermid

From coastal marshes to mountain peaks, North Carolina offers hunting in both abundance and variety.

ONCE again North Carolina has been blessed with an almost ideal breeding season for upland game. Despite a rather severe winter there was a good carryover of brood stock, especially rabbits and quail. This fact, coupled with favorable weather during the spring and summer, makes the general outlook for hunting this fall very favorable.

It should be remembered that the information here is not a prediction, but rather an evaluation of the general hunting outlook for upland game. As to waterfowl, it is yet too early to fully evaluate the total waterfowl picture. The northern "duck factory" was again plagued by severe drought, and this will have a depressing effect on waterfowl populations, especially ducks.

Doves. The dove crop this year may again be described as "bumper," with about the same supply of birds as last year. This is reflected in generous bag limits and a shooting season of 70 half-days. Best dove shooting could be expected during the first segment of the split season.

Marsh Hens. Once again the harvestable supply of sora, rails and gallinules will exceed the demand by hunters. Best hunting occurs during the fall moon tides when marshes are sufficiently covered by water to allow the birds to be taken by poling skiffs over dense salt water marsh vegetation.

Woodcock. The woodcock population is estimated to be about the same as last year, with plenty of birds for the relatively few hunters who go after them. Best woodcock hunting will be found on wooded bottoms near water.

Deer. The deer situation is about the same as last year. We can expect good

Raccoon hunters listen as their running dogs pierce the night with music. A continuing coon restocking program is paying hunting dividends in the west.

year's severe winter, ample brood stock vived to produce a large surplus for the arvest. Hunting should excel last year's.

deer hunting in the mountains and in the eastern counties, as well as on the Uwharrie and Camp Butner areas in the Piedmont. There will be antlerless deer hunts on some of the wildlife management areas, and possibly on some of the "open" territory. Antlerless deer hunts are allowable only where deer populations have outgrown the carrying capacity of the range, or are damaging agricultural crops.

Bear. Reports of agricultural damage from some eastern counties indicate an increase in bear populations in that section. In the mountains the bear population may be expected to be about the same as last year.

Wild Boar. No apparent change over last year's hunting is indicated. Bear are found only in Clay, Cherokee and Graham counties.

Raccoon and Opossum. There has been an apparent increase in both species in both the eastern and western sections of the state. Prospects for hunting are good wherever the species are sought.

Squirrels. Statewide, the squirrel hunting outlook is generally good. Late frosts in the mountains, however, will have the effect of concentrating squirrels in areas where the mast crop was not damaged. This will bring about a spotty hunting situation with mountain squirrel hunting good in some sections, poor in others.

Rabbits. Field surveys indicated an unusually high summer population of rabbits in many parts of the state. If the trend continues there should be a bumper crop of rabbits this fall in all localities where there is suitable food and cover.

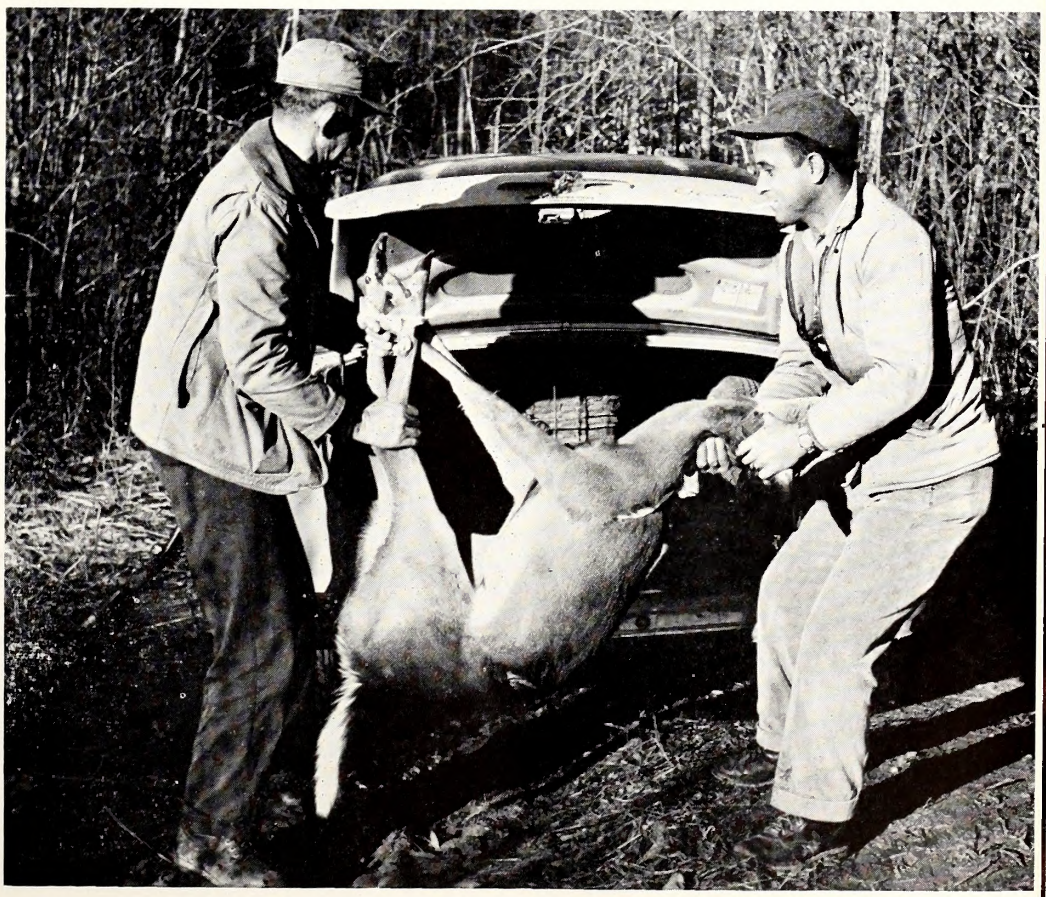
Quail. Summer populations of quail were on a level with the rabbit crop, and better quail hunting than last year may be expected in most localities.

Wild Turkey. No apparent change in the wild turkey situation. The species is restricted to wooded areas where there is little human activity, and they have maintained a fair population level for the past several years. Hunting conditions will be about the same as last year.

Ruffed Grouse. A good supply of birds this year, but grouse hunting is restricted to the mountain counties. There will be local variations in number, but lack of hunting pressure will assure a good harvestable supply.

Biologists report that rabbit populations are high in many areas of North Carolina. The outlook for fall hunting is favorable.

A bumper crop of doves permits a generous bag limit of 12 daily. As usual, hunting will be best in the first open period.

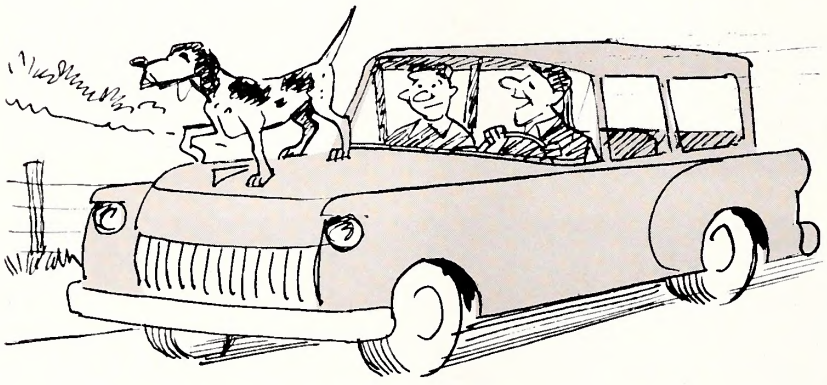


Deer hunting opportunity should equal last season's. Again, antlerless deer hunts will be permitted in certain problem areas.

for the birds

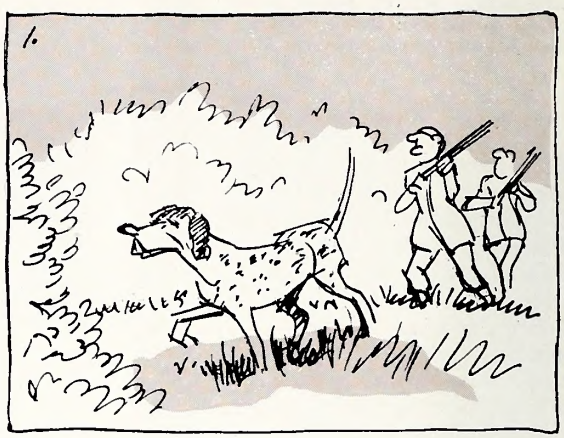
by Bill Ballard

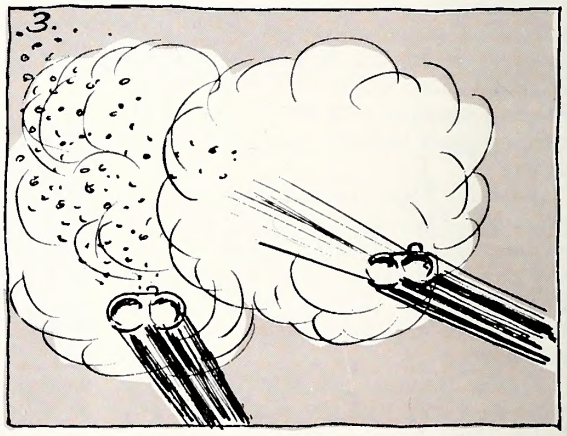
"He's an absolute non-conformist."



"And that's why I call him 'Whammy.'"

"Did'ja ever wish you wuz a Pekineze?"





"Chicken!"

What Makes a Wildlife Commission

by Clyde P. Patton

AT the first meeting of the new 11-man Wildlife Resources Commission held on July 31, Executive Director Clyde P. Patton, who has served the Commission since March, 1948 made this statement to the new Commission by way of reaffirming past Commission policy:

Better hunting and fishing in North Carolina can best be achieved under a program which places emphasis on five major activities —regulation, enforcement, management, education, and research —all being accomplished in accordance with policies established by the Commission in official session, and administered by a staff of the best-qualified men that can be employed with the salaries established for the various positions.

The North Carolina law establishing a commission to represent the interests of the sportsmen and giving it authority to employ a director, establish policies, adopt regulations, and plan use of the hunting and fishing license dollar, is on a level with the best state wildlife enabling legislation in the Nation. The members of the North Carolina Wildlife Resources Commission are recognized as the experts in the field of government, just as the biologists are recognized in the field of wildlife management and the protectors in the field of wildlife law enforcement.

Equal Opportunity

The basic purpose and importance of *regulation* and *enforcement* in North Carolina is to make it possible for all license-buying sportsmen to have equal opportunity to participate in taking the available annual surplus of game and fish and, at the same time, to carry over an adequate breeding stock. This is a difficult job. For effective accomplishment, it requires carefully prepared regulations based on legal authorization, and a highly-trained, well-organized division of physically-fit enforcement officers equipped with smart uniforms, modern means of transportation, and specialized communications facilities.

Increases the Chances

Emphasis on the *management* activity is also essential. Good wildlife management encourages and enhances annual production and increases the chances of sportsmen for getting a full bag or creel limit. Maximum production depends on the establishment of suitable food and cover for game and a suitable aquatic environment for fish. The complicated ecological factors involved in finding what is needed and getting the cooperation of individual landowners and the public in obtaining it and putting it into effect requires highly-trained men with special scientific qualifications. To be successful, game and fish management must be made compatible with the important agricultural, industrial, and forestry interests in the state.

Support of the Public

Effective wildlife *education* obtains the support of the public for the use of sound, proven methods in wildlife conservation. Without this support, the Commission must necessarily submit to demands for projects and programs known to be wasteful, unproductive, and ineffective. The written and spoken word distributed through the media of the press, radio, television, bulletins, magazines, and movies are the means used in our program. Here again, the men who do this work must be highly-qualified specialists in the fields of wildlife conservation and public relations.

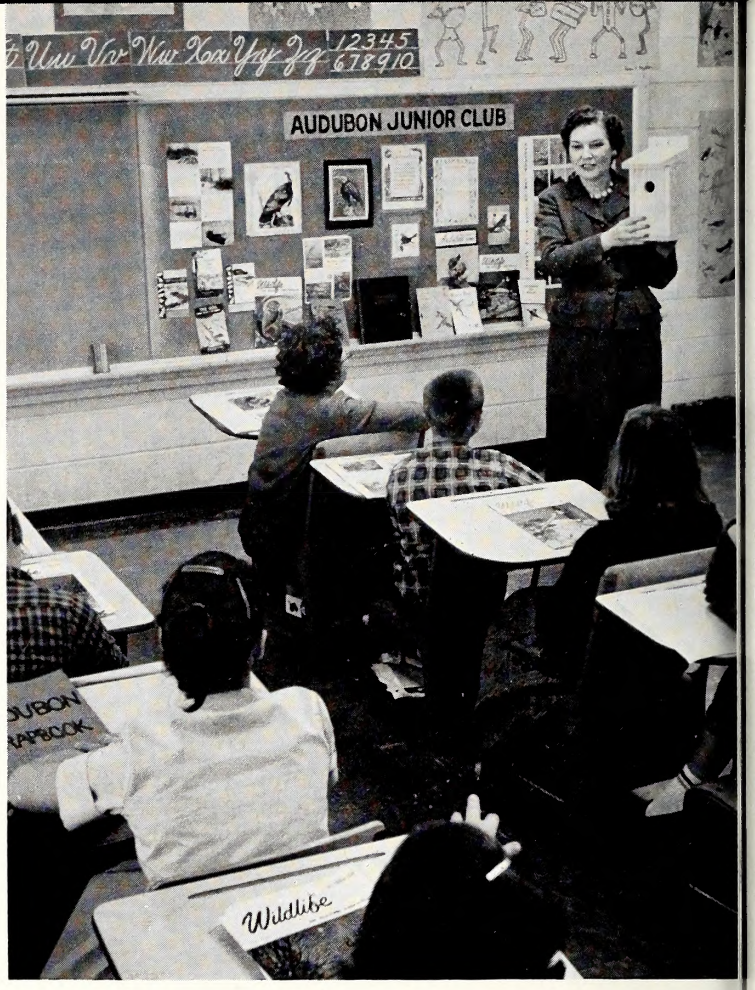
To Obtain the Facts

Research is to obtain facts upon which to base recommendations and make decisions. In addition to our own staff research, this work is done through cooperation with North Carolina colleges and universities and the Federal Government.

In 1959, the Legislature added motorboat registration, motorboat safety education, and motorboat safety law enforcement as new duties and responsibilities for the Wildlife Resources Commission. These have been absorbed and are being effectively accomplished by the Commission with a minimum number of new employees (limited by funds available), and with minimum changes in organization, procedure, and function.

Activities of Our Audubon Junior Club

by Jacquelyn Bartholomew
North Tarboro Elementary School
Photos by Jack Dermid



Nature study and conservation have a place in every classroom and contribute greatly toward the education of our youth. Here, the outstanding program of Mrs. Carrie S. Clary (right) of North Tarboro Elementary School is described by one of her pupils.

I first became acquainted with the Audubon Junior Club on October 26, 1960. It was on this date that the class received our club materials. We elected officers and they are as follows: President, Mike Caldwell, Vice President, Beth Palmer, and Secretary, Linda Bryant.

We have studied a brief biography of John James Audubon. We have also learned the purpose of the club. The purpose of the Audubon Junior Club is to learn more about the wonders of out-of-doors, the fun of exploring backyards, schoolyards, neighborhoods, and countrysides, and to discover the plants and animals living there. Another purpose is to understand how we can use and yet conserve our natural resources—wildlife, soil, forests, water, and minerals. Audubon Junior Clubs are fun and help to develop leadership.

Throughout the year the class has had many projects and activities. One of the first was to adopt a tree near our home and to observe its changes during the year. This has proved to be an interesting and worthwhile project. After collecting information and pressing leaves, we made notebooks on this subject.

One of the most fun-filled activities was the building of birdhouses and bird feeders. Also a few boys made squirrel boxes from nail kegs.

We are 100 percent in planting sunflower seeds in our class. We are planting them for food for the birds. Still on the subject of planting, we have planted four maple trees on the front lawn of the school. We are looking forward to watching them grow.

As a whole we have specialized in birds and during snowy weather we fed them. A bird calendar has been kept by every member of the class and we have almost filled it. Mrs. Clary, our teacher, played a recording of different bird calls. At Christmas our grade parents presented the class with the newest edition of **Birds of North Carolina.** Everyone has use it and enjoyed it.

We have printed many posters to go along with our various projects. A large mural showing the conservation of our

The building of squirrel nesting boxes is popular with boys and gives them the satisfaction of doing something for wildlife.

A classroom mural depicts relationships of our soil, water, forests, and wildlife. Nature subjects give life to art programs.

One club projects was the construction of litterbags decorated with bird and mammal pictures. These pupils will use them.

EDITORIAL COMMENT

TO boys and girls in the elementary grades, the world ot nature is a fascinating world of discovery. Every flower, bird or mammal arouses their curiosity and sparks inherent desires to learn about what they see. If children are encouraged and given proper guidance during these formative years, they will learn to respect, perhaps love, the natural world about them and realize they are a part of it. Conservation then comes as a matter of course.

Realizing that children need to have their curiosity satisfied while it is still alive and that nature provides an opportunity for making school more meaningful, Mrs. Carrie S. Clary, sixth-grade teacher at North Tarboro Elementary School, established her first Audubon Junior Club 10 years ago. She has organized a new club every year since and has brought new meaning to the lives of hundreds of youngsters.

The activities in Mrs. Clary's Audubon Junior Clubs are many and varied. Their scope can best be told through the words of one of her pupils, and **Wildlife** is proud to print a theme written by Jacquelyn Bartholomew.

The teachers of North Tarboro Elementary School are encouraged to incorporate nature study into their classroom work by Principal Elbert L. Stocks.

"Nature education adds to the total education of the child," he comments. "We know that when a pupil does something himself he learns more than when he just reads about it. Doing is the basis of conservation education in our classrooms."

Audubon Junior Clubs are sponsored by the National Audubon Society. They have been a part of the Society's educational program for nearly 50 years and have enriched the lives of more than 11,000,000 youngsters. Teachers—sometimes Cub or Brownie Scoutmasters or even interested parents—serve as leaders of the clubs while the National Audubon Society provides the technical information required for making them a success. Projects are carefully planned to fit in smoothly with the classroom work of elementary grades. The cost to each child is only 25¢ which helps pay for the cost of materials. Project sheets on trees, birds, insects, flowers, and mammals are sent to club leaders at regular intervals and each child receives his own illustrated scrapbook that he develops as projects are undertaken.

Complete information about organizing an Audubon Junior Club can be obtained by writing the National Audubon Society, 1130 Fifth Avenue, New York 28, New York.

The Wildlife Resources Commission frequently supplements to the work of club leaders by supplying additional teaching aids. Bulletins, such as **Our Wildlife Neighbors** and **A Guide for Teaching Wildlife Conservation** are mailed to teachers free upon request. Motion pictures from the Commission's library are loaned without cost and Commission personnel are available for consultation and special programs. The role the Commission played at North Tarboro Elementary School is discussed in Jacquelyn's theme.

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natural resources. Some class members have made small drawings of birds and mammals in their natural habitats.

As a language assignment we divided the class into four groups and had panel discussions on the conservation of wildlife, soil, forests, and water. For these discussions some wrote to different government offices for additional information on these topics. We learned the conservation pledge, too.

Many films have been seen that have tied in with our nature study. They were: "The New Paul Bunyan," a story of the wise usage of forests, "Bobwhite Through the Year," the life cycle of the bobwhite, and "Wood Duck Ways," a story of the wood duck's habits. They were very good movies.

One of the outstanding events of the year was the visit of Miss Lunette Barber of the Wildlife Resources Commission. She has made three visits to our class. On her first visit she showed 25 bird slides in color and told interesting facts about each one. Miss Barber also gave each member of the class the newest edition of **Our Wildlife Neighbors,** and a copy of **Wildlife in North Carolina.** On her second visit she showed the film, "Bobwhite Through the Year." She also taught us to make litterbags which we have done. The third visit Miss Barber made to our class was my favorite. She showed us some animal pelts, and gave us some interesting facts on taxidermy.

Our second speaker was Mr. David C. Massengill, Edgecombe County Wildlife Protector. He talked to us on animals and why we have hunting and fishing seasons. He then distributed pamphlets of 1961 fishing and motorboating rules.

The third speaker was Mr. Charles T. Cone, Assistant County Agent and 4-H leader. He talked on the topic of improving wildlife habitat.

Our Audubon Junior Club has provided good subject material for other studies such as English, composition, writing, reading, art, nature study, and many others.

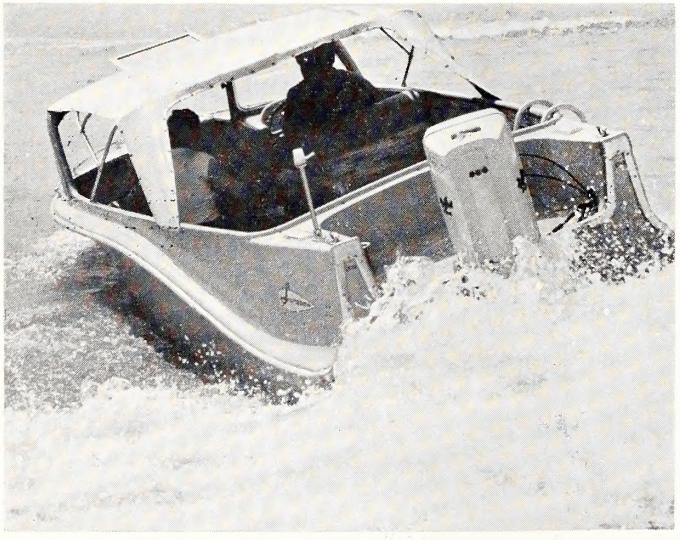
This has been an eventful and outstanding year in my school life and one I will long remember with pleasure.

A bulletin board provides a graphic record of activities. Here, Lunette Barber, Commission representative, surveys the work.

The Skipper

Conducted by Duane Raver

THE Wildlife Resources Commission has made a genuine effort to reduce the number of boating accidents in North Carolina. Attacking the problem from several aspects, the Commission has used the weapons of education and enforcement—first to teach the boater how to stay alive afloat, and then to discipline him if he disobeyed the law designed to save his own life. Legislation has been termed enforced education, and it is obviously a necessity in the case of crowded waterways. However, proceeding on the idea of accident prevention, the Commission is searching for ways to convince the boater that his life **is** in danger, and that constant attention is necessary if he is to stay out of trouble with his boat.



Jim Lee

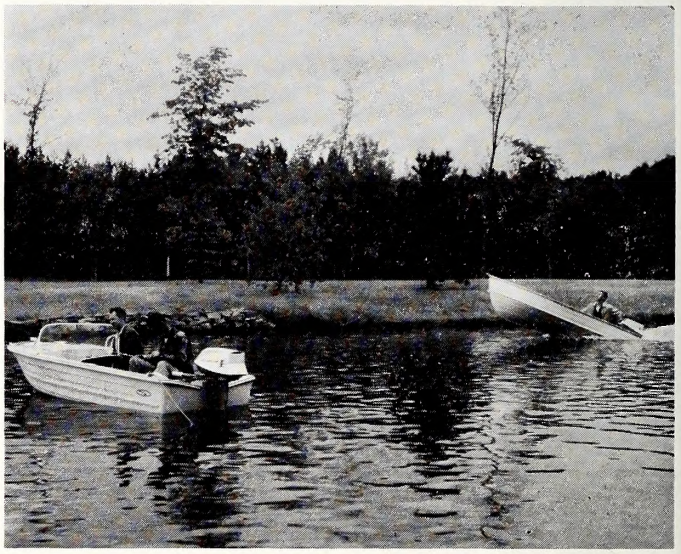
Boating safety involves practically every move of the skipper. Water accidents can be curbed, but it's up to you, the boater.

How well has the program of boating safety succeeded in North Carolina so far? The 1960 season was bad—although since no accurate figures were available for previous years, no one knew just how bad. The 1961 season got off to a slow and relatively safe start and then suddenly became nothing short of disasterous. And then about mid-season something else happened. Boating fatalities leveled off and the rate declined somewhat right at the peak of the boating season. Skiing accidents went up sharply, but with a tiny percentage of fatalities. Was the education program getting to the skippers? Was it a greater respect and more adherence to the law? Would it ever be possible to determine what did it?

It's too early to make predictions on the 1961 boating season, but at least momentarily the brakes have been applied to the murderous pace set during May and June. Wherever the credit is due, the final handshake must go to the boater himself. This sport is just as safe as you, the boater, makes it.

Recklessness or Carelessness?

If any concrete conclusions can be distilled from the welter of information on boating accidents, one would be that "carelessness" far exceeds "recklessness" as a cause of these mishaps. Often the two are inseparable and difficult to distinguish. But in the cases where a fairly clear definition is obtainable, the finger almost invariably swings over and points to pure carelessness as the culprit. Now this can range all the way from forgetting the life jackets to failure



Evinrude

The high bow of a poorly loaded boat prevents the operator from seeing directly ahead. Keep vision clear at all times.

to keep a sharp eye forward at all times. But most of them are cases of simply not having one's brain in gear.

It is not necessarily reckless to take off in the family runabout in the face of a brewing storm, but it certainly is careless to do so. And in some cases, traveling in a straight line at five miles per hour might be considered reckless operation—for example, in a narrow channel at night with no lights visible. More often than not, a careless act on the water is also an illegal one, and most always a reckless one is against the law. Yet many deaths involving boats have occurred when the operation was strictly legal from a law point of view.

Campaigns against recklessness are most commendable, but we must step up the battle against carelessness afloat.

Asking for Trouble

Thinking back, it's most amazing that it hasn't happened more frequently and with more disasterous results than it has. The tragedy in mind is that of a car-load of would-be boaters submerged when the car rolls into the water as a boat trailer is being unloaded.

This hardly comes under the heading of a boating accident, but it is worthy of some consideration. Many boat ramps are, by necessity, quite steep. They must end in farily deep water in order to be functional in floating a boat. The general procedure is to back the car down the ramp until the trailer is partially submerged so that the boat will float free when the straps are finally released.

Duane Raver

Often an observer will get out of the vehicle to guide the driver in backing. But more often than not the rest of crew stays in the car until the boat is off. Usually the driver gets out to make the last minute launching preparations and applies the hand brake in doing so. It may seem like belaboring a point, but right here you may be asking for trouble. It makes more sense to unload the car's passengers before any of this starts; if something allows the car to roll into the water, all is not lost.

Speed Limits?

Very soon after the present Boating Safety Act went into effect, the subject of boat speed limits came up. And every now and then it crops up again. The comments on this aspect of boating safety have ranged from solidly backing such limits to steadfast opposition to them. This is about what you might expect. One of the more frequent question on this topic is "Why don't we have such speed limits?"

Apparently it is thought by some that the setting and enforcement of boat speed limits would practically single-handedly end boating accidents. There is a great deal of doubt that such far-reaching results could be achieved so simply. It must be proved first that such regulations are necessary and practical. This in itself would be a big job if not impossible. At the moment, close analysis of the boating accident reports (the only available data on the cause, etc. of boat mishaps) fails to point up speed as a major contributing factor. For example, what happened in any given accident probably would have occurred at a much slower speed. Perhaps some accidents would not have been quite as serious at slower speeds, but even this is speculation.

Any regulation or law must be practical in order to be effective and workable. And here's where the speed limit is really snowed under. It is nigh on impossible to "estimate" a boat's speed—either from another boat or from shore. An expert might come within a few miles per hour, but would this sort of evidence stand up in court? Obviously it wouldn't. But even in the face of this seemingly insurmountable obstacle, if speed limits were glaringly needed to curb accidents, study perhaps could come up with enforcement means.

The alternative to a legal speed limit is a voluntary one, or at least moderation on the part of the boater when the situation warrants it. Easier said than done? Certainly, but the mechanics are there for a workable plan. It means that even the cooperative boater must know when to slow down, must realize the dangerous situations when even moderate speed is too fast. It may amount to being "ultra-conservative" with the throttle, but actually this attitude represents the essence of safe boating.

Designating certain speed zones is a tough problem too, and really is no practical solution. Setting up any sort of zones on the waters of the state would call for expenditures way beyond the means of the Wildlife Commission, and would call for increasing our enforcement staff by many men. Again, if it could be demonstrated that such a procedure would pay off in a saving of lives, consideration would be much more likely.

Water Etiquette

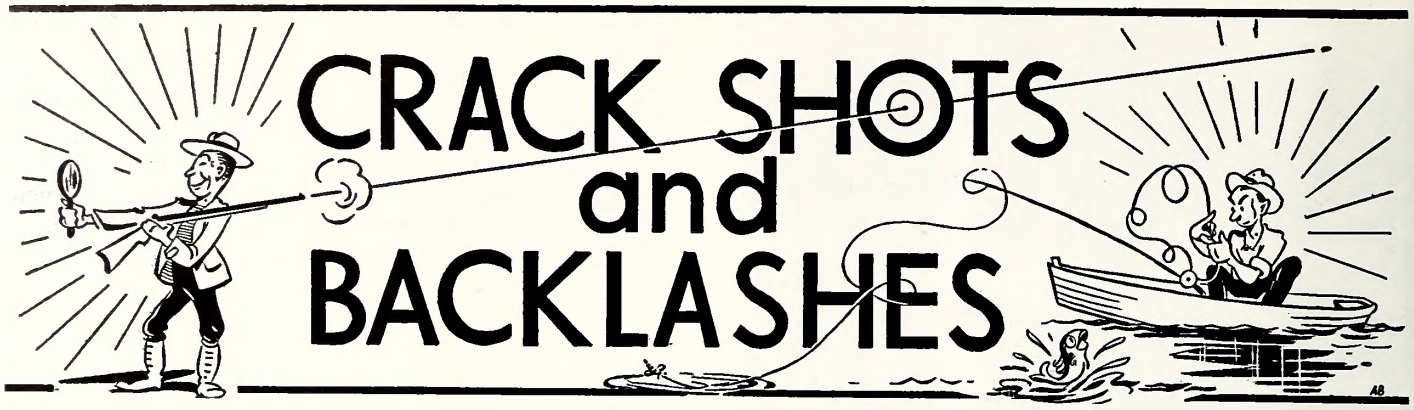
Such simple acts as passing another craft too closely, crossing its bow or "buzzing" it have cost lives. Some of these maneuvers no doubt are unintentional; some very likely are deliberate. If you have been guilty of such goings on, better take another look at your etiquette afloat. The line between politeness and safety in these cases is a very narrow one. The experienced boater knows that certain ethics are a part of his sport and he pays attention to them. He knows that his own enjoyment (if not safety), depends on other skippers doing likewise. It really goes beyond strict obeyance of water safety laws and often gets into the "unwritten law" category.

Evinrude

Mind your water manners in all boating situations. Play safe.

For example, in negotiating a narrow channel, if the craft coming your way is either unobservant or just plain hoggish, pull over to the right as far as possible and give him room. When passing another boat, give it plenty of room and slack your speed if there is any possibility of wake trouble. Make sure the other vessel sees you and, if possible, knows of your intentions. Here the Rules of the Road are important; this way, both of you know what the other is going to do.

Water etiquette is also important in preventing the annoyance or nuisance aspect of some boating operations. The fisherman doesn't like fast pleasure craft or skiers disturbing his sport. And there's no denying that some week-enders buzz fishermen too closely. Not only is this a rather rude gesture, but it can be a dangerous one. Everyone is entitled to enjoy the waters, and everybody can, if all of us will just watch our water manners.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

Recent action by a committee made up of sport and commercial fishing interests points the way toward a better future for all who share in North Carolina's coastal waters. Instead of launching a tooth-and-nail fight over their differences, they began by agreeing on matters where there is no conflict. And the work of the committee continues in a spirit of cooperation.

One result is the recommendation that trawlers keep a reasonable distance from fishing piers. In years past there have been many instances where bitter resentment has arisen between commercial fishermen who felt that piers interferred with their livelihood, and pier operators and customers who felt that trawlers often came too close to the piers.

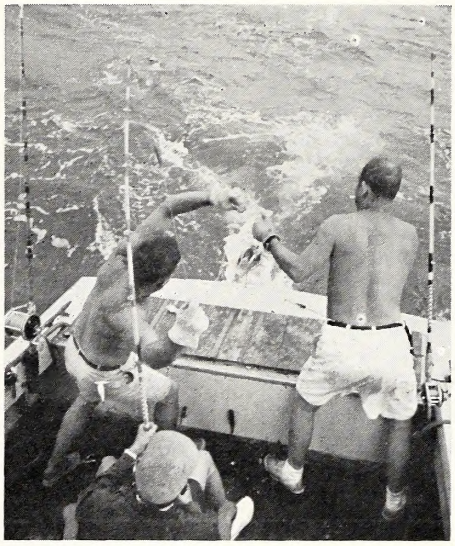
Too little is known today about the habits and requirements of marine fish for anyone to pound a table and say, "This is so; and that is not."

Marine fish, like inland species, are subject to many variables. And when the fish aren't biting, one element is prone to accuse the other. Most of the time nobody really knows the answers.

It could be that some aspects of commercial fishing are depleting the resource by taking too many, too small. And commercial fishermen point back to the "ice-box" sportsman who drags a small net through the backwaters, taking small shrimp from their nursery.

Controversy there will be, as long as one group wants to commercialize on a resource and another pursues it for sport.

But one defense of the commercial fisherman just doesn't ring true anymore; "a man's right to make his living takes precedence over another's right to go after the same resource for fun."



That statement doesn't ring true because it doesn't take into consideration a third party, the commercial sports fisherman.

The commercial sports fisherman is a phenomenon of the last couple of decades. He's the charter boat skipper, the guy who sells you a plug or a rod, and the kid who fills your outboard tanks with gas.

The commercial sports fisherman is also the waitress behind the counter who serves you a predawn breakfast, and the maid who makes the beds in the motel.

The commercial sports fisherman is the cop on the corner at a resort town filled with fishermen from all parts of the country, and he's the wildlife protector who checks your life preservers. Or he may even write magazine copy.

Perhaps the commercial sports fisherman should stand up and be counted; he also makes his livelihood from the resource that swims in the sea.

Game Law Changes

DEAR SIRS: I am taking this opportunity to write and advise you and your fellow editors that we here in Cabarrus County have just completed formation of the Cabarrus Gun Club, associated with the N.R.A. 100 percent. The greater majority of our members are not only interested in the shooting of firearms at targets or clay pigeons; but also love hunting and fishing. Therefore, we subscribe to your very fine magazine. We are highly interested in the fish and game laws of our State, and intend to wholeheartedly support laws either now in effect or in the making, which we feel to be for the good of game and those who hunt and fish for it.

We would, however, like to see in the magazine a section or page or two pertaining to proposed changes and alterations to our game laws. We firmly believe that a great number of interested people would take notice of such proposed changes in your magazine rather than in some back page newspaper, and then only after it would be or is too late to voice opinion on such changes or additions.

Again we express our thanks to you for a very fine magazine, and please be assured that we as a club or group of men shall strive with all our power to keep and maintain the high caliber of game and fish laws we now have in our State. Please feel free to call on us at any time that we may be of service to you. BILLY H. BUCHANAN, PRESIDENT, CONCORD.

As much as we would like to publish proposed changes in the hunting and trapping regulations, the time element is prohibitive. Copy for this issue, for example,

was prepared last May. Copy for the May issue was prepared in March. The Wildlife Resources Commission met last May 9 to set up the proposed hunting and trapping rules, and began a series of nine public hearings on the subject on May 23. The official hunting and trapping regulations were established at the June 8 meeting. Thus the only way left to publicize the proposals is through news media.

This year county wildlife protectors were given the information in news release form and requested to give it to their local news editors. Judging from our clipping files the proposals were given wide coverage.

We will be glad to print in this section of our magazine any suggestions regarding changes in either the hunting or fishing regulations.

Members of the new 11-man Wildlife Commission are shown taking oaths of office in Raleigh. Front row left to right are Commissioners Powers, Lambeth, and Woodhouse. In the back row are Commissioners Ledford, Ellis, Crouse, Carr, Briggs, Bridger, and Beal. Absent was Commissioner Phillips. Associate Justice Denny is giving the oath as Secretary of State Eure watches in the Hall of the Senate.

Catfish vs. Dogfish

DEAR SIRS: There has been a lot of argument in the bistro where I hang out regarding catfish and dogfish. Are these species natural enemies like domestic cats and dogs are? LUCRETIA PLYMPH, WAKE FOREST.

P.S. Why don't catfish have kittens?

Lucretia—some day you are going to go too far! Icthyological data do not indicate a perceptable quantity of inter-specific strife or conviviality pertaining to the genera in question. And tom-cats can't see under water. Also, stay away from them swingin' doors!

He's Now from Missouri

DEAR SIRS: "With rod and reel, we fill the creel." Though not with shark, thank you. Though I grant you it was a very daring and heroic deed for C. K. McNiell at Wrightsville Beach, featured article in July issue of Wildlife. And to think my three children and myself were in bathing in this very beach last summer! I have even fished from Johnnie Mercer's pier.

North Carolina is my home state, and I'm very sure that North Carolina has more variety in bird life than any other state I have visited or resided. The article and picture of the prothonotary warbler was good and caused me to harken back to memories of this bird when I fished on the Little River near Goldsboro, North Carolina. Could we possibly have some bird pictures in color?

We, the family, do enjoy your magazine very much. R. E. BUTLER, ST. LOUIS 4, MISSOURI.

It is always good to hear from transplanted Tarheels. Sorry, we can't supply color pictures of birds except those appearing occasionally on our covers. You might try the Audubon Society or the American Museum of Natural History. —Ed.

Mystery of the Span Worm

DEAR SIRS: Recently while rock hunting in the area around Franklin, North Carolina, a fellow "rock hound" and myself were literally eaten up by swarms of huge brown flies which abounded in the area by millions. They were so annoying that I inquired from several of the local citizens as to the cause of so many flies in that particular area. I was told that they had been dropped in bags from low flying planes to rid the trees of span worms which are causing damage to the timber.

Is this a common practice? I've never heard of anything like it before. Who is dropping them?

Those big flies may destroy span worms, and they just might do away with the fisherman, too. A poor fisherman couldn't bear them for long in an open boat, as they are almost as bad as deer flies or black flies. Incidentally, I was told that a bag of these flies that failed to open upon hitting the ground was found on Nantahala Lake. I hope that whoever is spreading these little monsters throughout our forests will teach them the difference between a man and a worm, as I believe a worm would be much more tasty to them. It might help some if when a bag of flies is dropped, a bag of fly-swatters be dropped with them so we can protect ourselves.

I hope you can give me some information on this matter. There's no one else I'd rather have investigate it than my favorite wildlife magazine, which I read from cover to cover each month with pleasure. It sure is a swell publication. JOHNNIE R. GRAY, ASHEVILLE.

P.S. What is a span worm, and where might I find some information on them?

We checked with Fred Claridge, our State Forester, and he says that these flies have never been dropped from airplanes on our forests. Apparently, there is an outbreak of European span worms this year. The span worm is a "measuring worm" type of cater-

Wildlife PRODUCES for NORTH CAROLINA

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PROTECTOR OF THE MONTH

Frank B. Reese

Frank B. Reese, Wildlife Protector for Alexander County since April 1950, is a native of Alexander County and a graduate of Taylorsville High School. He also attended Lenoir Rhyne College, Catawba College, and has studied with the Newspaper Institute of America in New York. He taught school for eight years, before attending the Wildlife Protection School of the University of North Carolina's Institute of Government at Chapel Hill in 1950.

Reese is an avid foxhunter, and is nationally known in the field. He was employed as a salesman for 11 years by a Nashville, Tenn., dog food company, has served as secretary of the N. C. Foxhunters Association and the Tar Heel Beagle Club, and has served as judge at the National Foxhound Field Trial. Reese has also acted as associate editor of *Chase,* the official organ of the National Foxhunters Association.

The Alexander County protector is active in the Lutheran Church, teaching an adult Sunday School class.

Reese is married to the former Ida Herman, and has two children and two grandchildren.

ENFORCEMENT RECORD FOR JULY

HUNTING AND FISHING:	
Persons checked	36,680
Total prosecutions	733
Total convictions	712
Total cases not guilty	7
Total cases nol prossed	14
Total cases dismissed	0
Total fines collected	$2,876.60
Total costs collected	$5,770.65
BOATING:	
Boats checked	10,877
Total prosecutions	461
Total convictions	442
Total cases not guilty	9
Total cases nol prossed	10
Total fines collected	$1,242.00
Total costs collected	$3,801.83

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

pillar which defoliates hardwood trees. The brown fly lays its eggs under the skin of these worms, and the resulting grub destroys the worm. Thus, when the worms become numerous the flies multiply also, eventually reducing the span worms below the danger point.—Ed.

Concerned About War Games

DEAR SIRS: Deer season will be with us in a few months, and I am looking forward to it just as much as the next deer hunter that has had the fever for quite a few years.

The North Carolina Wildlife Commission is doing a wonderful job of providing us deer hunters with a place to hunt. The Wildlife Commission spends an enormous amount of money each year to feed and protect the deer, which is one of the finest things they could do. Then why does the Wildlife Commission stand aside and let the U. S. Army have their war games in some of our best counties? Does the Wildlife Commission have any control over this at all? Look what this will do to the feeding grounds. How many young fawns will be separated from their mothers in these war games and left to die? This is something to think about. What's wrong with all the counties we have with no deer population at all! E. C. DAVIS, JR., CHARLOTTE.

We appreciate your complimentary remarks in regard to the Commission's big game program. We presume that your comments concerning Army use of our best game counties has to do with the recent maneuvers in the Sandhills section. The Sandhills Wildlife Management Area was acquired from the United States Government several years ago *under terms which provided for military use.*

Actually, there has been little evidence of damage to the wildlife resources by such use. The military authorities have complied with regulations pertaining to protection of wildlife and we have no reason to criticize such use at this time.

We appreciate very much your concern in this matter and if we can provide further information on this and other matters, please do not hesitate to call on us.

Water Held for Bass Spawning

DEAR SIRS: Attached is a copy of curves showing daily water temperatures and daily maximum and minimum reservoir elevations at our Tillery Plant from April 1 through June 14, 1961. I believe this covers the bass spawning period for the Tillery Reservoir for this year.

The big fluctuation in April was brought about by heavy stream flows up river. There was another period of fairly heavy discharges in the middle of May, but on this occasion, we were able to hold the elevations reasonably constant. We hope that conditions favorable to spawning were maintained throughout the most active part of the season. W. J. BROGDON, OPERATING ENGINEER, CAROLINA POWER & LIGHT COMPANY, RALEIGH.

Thank you for your letter and the accompanying chart of your Lake Tillery operation during the past bass spawning season. As usual, it appears that your company has done an excellent job in maintaining constant levels during the critical bass spawning season.

The fluctuations in the reservoir level in April occurred with water temperatures between 55 and 60 degrees. This would be expected to have no effect on successful spawning. It would be our guess that the eggs were in the nests during the last ten or twelve days of May. During that time the maximum water level fluctuation was almost exactly one foot.

On behalf of the fishermen of North Carolina, may we express our appreciation for the interest your company takes in maintaining constant water levels, so far as possible, during this brief but very important time of the year. Your cooperation constitutes a real contribution to better fishing in North Carolina.

An Answer to Cats

DEAR SIRS: In your July 1961 publication I took interest in a letter from W. N. Lineberger, who stated that everywhere

he fished or hunted this year he saw signs of or saw a cat. He is right! Cats really destroy a lot of game—young game especially. I don't think the owners of the cats should have to pay a tax, however. There is bound to be another solution. One of them, or the start, at least, could be in wildlife clubs and 4-H wildlife projects. One of my 4-H Wildlife Project Unites, Unit X, Keeping Pets at Home, has an answer. I have worked on this problem for over a year now and have made some progress. More 4-H Club members doing the same could help. RHETT B. WHITE, COLUMBIA.

What's Happened to Bluebirds?

DEAR SIRS: Of late, in fact for all the spring and summer, I have been concerned about our bluebirds. I haven't seen a bluebird this whole year and ordinarily they are about our most common bird.

Usually when you put up any sort of a nesting place for them, you will have occupants right away. I have started to put up a box and a pair of bluebirds would be looking it over before I got it through. This year not one has been around.

I have heard that a lot of bluebirds are destroyed by getting in tobacco flues in tobacco barns. No doubt a lot do meet their fate that way, but surely this couldn't get them all.

If they are not around another year it will surely be a pity, as a bluebird adds a lot to spring and summer, and not only that but he is one of the best insect destroyers of them all. They will give a garden a good going over. He can also fight, asks and gives no quarter.

Since I started writing this, it occurred to me that I didn't have around any wrens. Little Jenny Wren, the cutest bird of them all. I got up and went out to a building that heretofore has always had a wren's nest over a shelf on the porch. No nest there. If Jenny Wren has left us too, that will be bad. When I was a kid wrens would work in and out of our wood pile, and we would try to catch one. Of course we couldn't, as Jenny Wren would come out on the other side of the pile, flip her tail and fly off.

If anybody has any bluebirds around, I'd be glad to hear from them. Or, by the same token, if anybody has any explanation as to what has happened to mine, ditto. Z. H. RUSH, ASHEBORO.

Although little or no research has been done, it is apparent from many reports that bluebirds are on the decline. Tobacco flues still take a heavy toll of nest site-seeking birds in the spring. Now is the time to close the flues or take other measures to prevent birds from getting trapped in tobacco barns next year.

October finds Canada geese winging their way back to North Carolina and soon the air over Currituck, Mattamuskeet and Gaddy's Pond will resound with their exciting calls. The greatest flights occur during the full moon of October. And it's time to purchase your duck stamp and get set for the Nov. 16—Jan. 8 goose season.

Probably more important in the apparent decline of bluebirds and other insect-eating songbirds is the widespread and sometimes indiscriminate use of chlorinated insecticides. Some studies indicate heavy losses of songbirds when they eat dead or dying insects in areas where these chlorinated insecticides are used. Perhaps your local library has a copy of the September 1957 issue of *Wildlife;* see the article titled "H-Bomb in the Pea Patch."

A True Southerner, Suh

DEAR SIRS: I have just received my copy of the July issued of WILDLIFE IN NORTH CAROLINA. Congratulations on publishing one of the finest, most heart-warming, inspiring covers ever to grace a magazine!

Besides sharing the feeling of the departing Confederate soldier as he says goodbye to his hunting dog, I thrill to the sight of the Stars and Bars and Confederate gray-clad men marching in defense of our beloved South, against an enemy seeking to destroy it physically and spiritually. As a transplanted North Carolinian, I am happy to realize that North Carolina people—like me—are still keeping the Old South and its fine traditions alive and unbowed. EDMUND McLAURIN, ST. PETERSBURG, FLORIDA.

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Jack Dermid

DOVES: A CHALLENGE TO MARKSMANSHIP

Billy Noell of Raleigh drops a feathered jet as it zooms over a field of browntop millet on the J. H. Aiken farm in Wake County. The Aiken farm is one of 14 Piedmont farms where dove hunting rights for the 1961-62 season were leased by the Wildlife Resources Commission to provide free hunting opportunity for sportsmen. Ten acres of millet, an attractive food that ripens before corn and milo are normally harvested, were planted on each farm to lure the birds. Signs were erected designating the farms as Dove Management Areas with hunting permitted on Wednesday and Saturday afternoons only. When the first segment of the dove season opened in September, thousands of hunters enjoyed good sport close to their homes as a result of the program. The Dove Management Areas will be open again when the second half of the dove season begins on December 13. Why don't you try them? Refer to your August issue of Wildlife **for a map of their locations.**

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

TERRY SANFORD
Governor

North Carolina Wildlife Resources Commission

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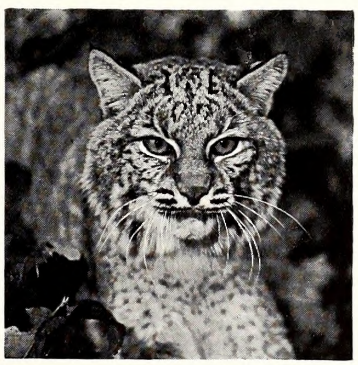

Although the bobcat on our front cover appears gentle enough to pet, don't let appearances fool you, for if any Tarheel mammal is truly wild, it is this secretive inhabitant of our coastal swamps, remote bottomlands, and mountain forests. He knows only a life of violence, a life sustained by the effective use of tooth and claw. Wildness is such a part of his personality that the bobcat is rarely tamed, even when taken as a kitten.

But despite their way of life, all predators play a valuable role in maintaining the balance of nature. Where they create problems, they should be controlled, not exterminated. For a story about bobcat control on wildlife management areas, turn to page 12. Color photo by Jack Dermid.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

Canine Wildlife Protectors

by John Oberheu
Wildlife Refuge Supervisor

Modern representatives of one of the oldest races of hounds help protect our refuges.

A few months ago a wildlife refuge protector on one of the western wildlife management areas was checking trout fishermen on a stream in his area. Walking along a trail paralleling the stream, he suddenly came face to face with two fishermen. One of the pair immediately turned and fled. By the time the protector had checked the other angler, the fleeing man was out of sight.

Later the man who had disappeared came to the checking station, and checked out with six trout. The daily limit is 10. Knowing that the man had run for some reason, the protector put Susie on his track. Susie is a bloodhound kept on the refuge.

Three miles from where she started trailing, Susie found the reason for his flight carefully hidden in a ditch. There were 53 rainbow trout in a sack. The man was convicted of exceeding the creel limit, his second such conviction in less than a year.

Another refuge protector checked two squirrel hunters participating in a managed hunt on one of the western areas. The amount of shooting that the men had been doing to kill six squirrels they displayed made the protector suspicious.

When a bloodhound was put on the trail of the men, he backtracked to a flat rock and pulled a dead squirrel from under the rock. When the rock was turned over, the refuge man found 11 more squirrels, and the two hunters were convicted of exceeding the bag limit.

Last year, during four hours of an antlerless deer hunt, county wildlife protectors used a bloodhound to quickly and efficiently track down seven hunters who were illegally using an area closed to hunting.

Gal, as this dog is affectionately called, wasted no time in finding every one of the hunters on whose trail she was placed. Two years ago her predecessor tracked down 32 hunters illegally using the same area during four days of antlerless hunts. Several different teams of protectors worked this dog until, on the fourth day, she had to be relieved from duty because of sheer exhaustion.

Serve Many Other Purposes

Bloodhounds owned by the Wildlife Resources Commission serve many other useful purposes in addition to wildlife law enforcement. The dogs have been used to locate lost hunters, to track down firebugs, find lost children, and to assist other law enforcement agencies.

Refuge Manager Wayne Wiggins used his bloodhound to locate two men who had set three separate fires on Pisgah National Forest. By taking the dog around one of the burned areas, the dog was able to pick up a trail, which he followed for several miles. The trail ended at a house which appeared empty. The dog went into the house, looked through several rooms, and finally pushed open the door to a bedroom. The bloodhound entered the room, climbed onto the bed and sat down between two men who were lying in the bed. Both men were fully clothed, and later confessed to setting the fires.

A hiker lost on the Appalachian Trail was found by a bloodhound kept at Rich Laurel Wildlife Management Area. The hiker, in his sixties, had left his car early in the morning. When he failed to return by nightfall, his family became worried and contacted Jimmy Goodson, refuge manager at Hot Springs. The window of the man's car had to be broken to allow the dog to get a good scent, and then the dog set out on the half-day-old trail. The man was found at midnight, about nine miles from his car.

On other occasions Wildlife Commission personnel and their dogs have assisted in capturing bank robbers and other criminals. Gal, the dog mentioned earlier, is jointly owned and used by the Burke County Rescue Squad and Wildlife Commission personnel in the area. Dogs at some of the State prison camps are used cooperatively, and are available whenever needed.

His Nose Is His Fortune

The bloodhound is the modern representative of the oldest race of hounds that hunt by scent. The bloodhound we know today originated in England, but was developed to its greatest usefulness in the United States. So reliable is the bloodhound's nose that this is the only dog whose evidence is accepted in a court of law.

He is a large muscular dog, with a coat that varies from mostly black to a combination of black and tan on to a complete tan. His gentle nature belies the ominous name, and though he will trail a man to the last of his strength he will not voluntarily attack him. When the dog has located a person he will keep guard and prevent escape, and if attacked will use his great power in self defense.

Sometimes the dog's reluctance to attack costs the dog his life. Ruby, a well known bloodhound in the Morganton area, tracked down an armed robbery suspect. The suspect was able to hold off the unarmed dog handler, cut the throat of the unsuspecting dog before she could defend herself, and then escape again. Susie, mentioned earlier, will quickly run down and attack a man who tried to flee from her.

Putting the Talents to Work

A bloodhound puppy can start training as early as six months of age. At this time he is already capable of tracking down members of the family with which he is familiar on short trails of a few hundred yards. The length of practice trails is gradually increased and made more difficult as the dog gains experience and fondness for tracking.

A dog whose training starts at six months may be ready to work by the time he is a year old. Although a young dog may have a sense of smell equal to that of an older dog, he continues to learn from experience and an older dog can follow a more difficult trail.

The unbelievably acute scenting ability of the bloodhound does have some limits. A trail that is only 10 to 12 hours old is easily followed, and a track 24 hours old is not unusual if rain or high winds have not eliminated the scent. Under ideal conditions it is possible for a good dog to follow a trail that is 30 or more hours old.

Contrary to a popular misconception, it isn't necessary to show the bloodhound a shoe or article of clothing belonging to the person to be followed. This is done, however, where the dog is expected to follow the trail of a particular person. In working harness a bloodhound will ordinarily strike the first trail he comes to and follow it. How the dog can determine the direction a person has traveled remains a mystery. A bloodhound will stay on the particular trail he is following though it may be crossed and recrossed by hundreds of other trails. He may also be used to back-trail a man to learn where he has been.

Eager in His Work

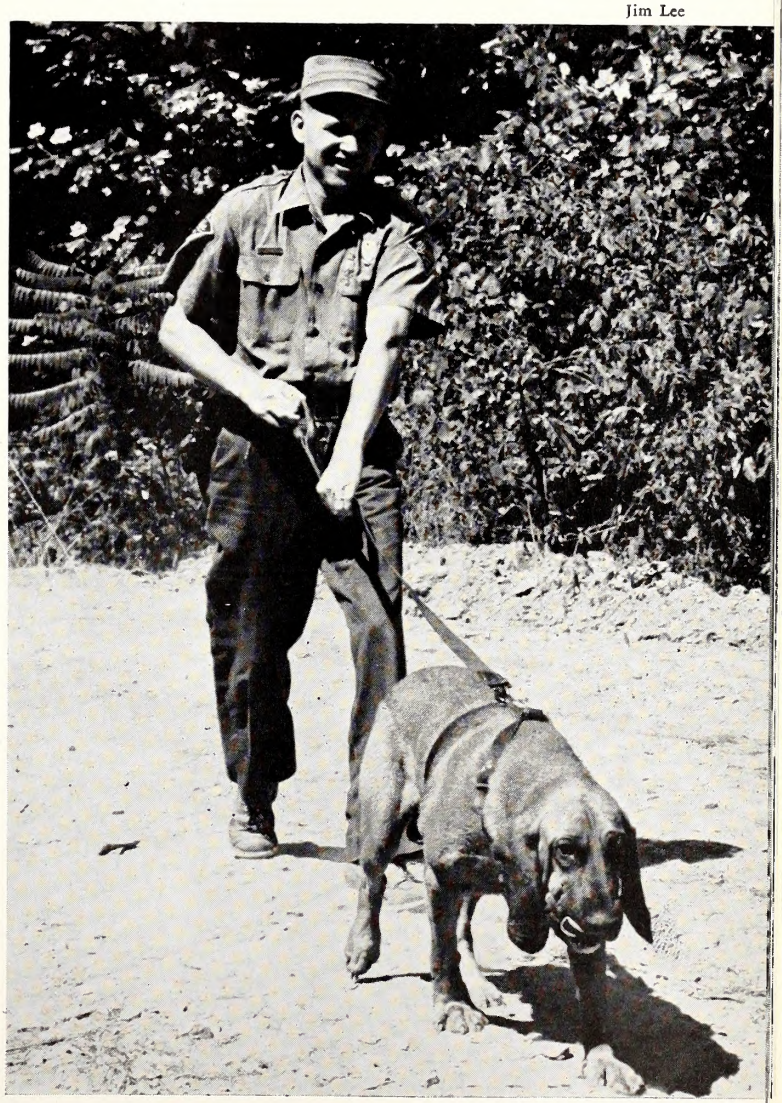
A bloodhound on a trail seems to delight in his work as he eagerly strains forward on the leash. Very often, particularly in mountain country, a dog and his handler can travel faster than the fugitive because of the strength of the dog pulling on the leash.

On a cold trail the dog will move more slowly, with his nose close to the ground, and will increase his speed as the trail becomes fresher. On a very fresh track the dog will often strain forward with his head held high, "winding" the trail he is following.

Though a good dog will work for almost any handler, he is most effective when handled by one familiar with his traits and peculiarities. Dog and handler become a team, understanding each other fully and working together to help each other.

The love that a handler can develop for a dog that he has trained and worked is illustrated by the story told about one refuge manager. In returning from a patrol with his dog, the refuge manager was driving through a drenching rain when he overtook several fishermen walking toward their car. Obligingly the refuge manager stopped to offer the anglers a ride in his pickup truck—but the fishermen rode in the back, because the front seat was reserved for the dog.

Jim Lee



Putting to good use the amazing nose of the bloodhound, wildlife protectors have been able to track game law violators, lost hikers and escaped convicts. Harmless unless his quarry attempts to flee, the bloodhound considers the chase a great adventure. Here Refuge Manager Jimmy Goodson follows a bloodhound straining at the leash on a mountain trail.

Wild Boar—Sport of Kings

by Rex L. Bird
Wildlife Biologist

A noble sport continues in our mountains

SOME of the most exciting big game hunting in North America is found high in the mountains of western North Carolina. Sport of kings, boar hunting, was once limited to the noblemen of the Middle Ages who hunted with horse and lance. Horse and lance are no longer fashionable, and you don't have to be of noble birth to hunt boar today. All you need is a valid hunting license, rifle, and nerves of steel.

Historical information shows that the Tarheel boar population was the first swine of this species **(Sus scrofa)** ever to live in North America. Introduced into North Carolina from Europe shortly after the turn of the century these are husky and powerful animals with long snouts, extremely short necks and high shoulders.

The European wild boar is armed with canine tusks that protrude from the upper and lower jaws, growing from the root as fast as worn down. With these "tushes" the animal slashes outward and upward for defense against enemies, particularly dogs. These tusks are also used to dig for insects, roots and other food materials.

Boars cover large areas in their nocturnal search for food. In early fall they will usually be found near sweet mast (white and chestnut oaks, beech and hickory). They also relish apples and make heavy use of clover patches and green corn from high mountain fields.

Recognizing Boar Signs

Boar tracks are wide, with rounded toes unlike deer. They leave prints of dew claws. In direct contrast, deer tracks are narrower, and rarely show dew claw marks except in very soft places.

Other recognizable boar signs are rooting areas, wallows, and tusk marks on saplings and in trails. In the vicinity of wallowing places they rub on trees, leaving mud on the smooth trunks. Their size can be estimated from the height of the rub.

Gone Are Lance and Steed

Today, guns and cameras have replaced the lance and spear of Medieval times, and automobiles and jeeps have replaced horses in transporting hunters deep into boar country. And although a wild boar is occasionally killed by a hunter in search of deer, most hunting is done with the aid of a pack of trained boar hounds.

In general, three methods of hunting are used—the stand, the still hunt, and the chase. All require skill and endurance from the hunter, who is challenged by some of the most difficult terrain in eastern North America. Hunting is permitted this year in Cherokee, Clay, Graham and Macon counties, with open season from October 6 to January 1.

Hunting From Stands Exciting

On most of the organized hunts the hunters take stands and await the possibility of a shot at a passing boar. Hunting starts in the crisp tingling autumn air just before daybreak, when even the dogs are quiet. Hunters are dropped off at stands, preselected spots where the boar is most likely to pass during the chase.

In the meantime, dog handlers lead the trained boar hounds through the forest and up the ridges to where boars are most likely to be encountered. When fresh signs are spotted a couple of the "strike" dogs are released to take up the scent and start the chase.

When either of the strike dogs begins baying, the rest of the pack is released for the exciting chase through the woods. One of the thrills of boar hunting is the uncertainty of what the animals are going to do once the chase is on.

European wild boars don't have predictable escape characteristics as do deer. They may run in circles, or zigzag patterns, or they may double back and charge! Meanwhile the hunters remain on their designated stands until the boar approaches or they are signaled that a kill has been made.

Still Hunting Takes Patience

Hunting the wild boar can be done by stalking or still hunting, however they do not frequent any particular area regularly as other animals often do. They do return to certain wallows and have established ridge-crossing places.

Stalking is difficult, because the crackling of dry leaves and twigs under foot usually warn the sensitive boar of the hunter's approach. To hunt the boar in this manner takes a good woodsman with plenty of patience.

Unlimited Stamina For the Chase

Perhaps the most thrilling and dangerous method of hunting boar is the chase, and this calls for unlimited courage and stamina from both men and dogs. As the name suggests, this method involves hunters and hounds chasing the boar until he is captured.

Experienced dogs, after bringing the boar to bay, give him plenty of room. Working together, they dodge the sharp tusks protruding from his long pointed snout. One and then another nips at his legs and flanks to keep him busy and circling until the hunters arrive on the scene.

Many a hound that carries the scars of previous encounters is considered lucky to have gotten off that lightly. Sometimes there are dogs in the pack that don't return from the hunt, but are buried in the forest at the scene of the battle.

When the hunters arrive they may get in a shot at the boar as the animal slashes back and forth at the harassing dogs. Should the boar sight the hunters, it isn't uncommon for the beast to charge the armed men. Then it is every man and dog for himself!

The wild boar is best adapted to the most remote wilderness areas. As long as we preserve some of these areas, such as are found in the extreme western North Carolina counties, we can perpetuate this ferociously picturesque addition to our native wildlife population.

North Carolina State Library
Raleigh

Bill Ballard

Jack Dermid

Adventures with Waterfowl

Learning Where Our Waterfowl Go

by Otto Florschutz, Jr.
Waterfowl Biologist

AFTER the last day of the waterfowl hunting season is over the guns and decoys have been put away until next year, state and federal game protectors, refuge personnel and biologists begin the annual program of waterfowl trapping and banding. Just at the time when icy winds and waters bite through raincoats, boots and gloves, the trapping and banding program is at its height.

Reasons for banding waterfowl are many. The results show us migration times, routes, origins and chief wintering grounds. They show us population numbers and aid in measuring annual mortality. Results aid in setting individual flyway regulations. They assist in determining variations in hunting pressure, and they show the relative importance of individual species. And they explore many minor aspects of waterfowl management such as types of mortalities and ages and sexes of birds dying from various causes.

Ducks, geese, and a few coots are banded in North Carolina. Population concentrations are first located, then traps are constructed and set and bait corn is scattered nearby.

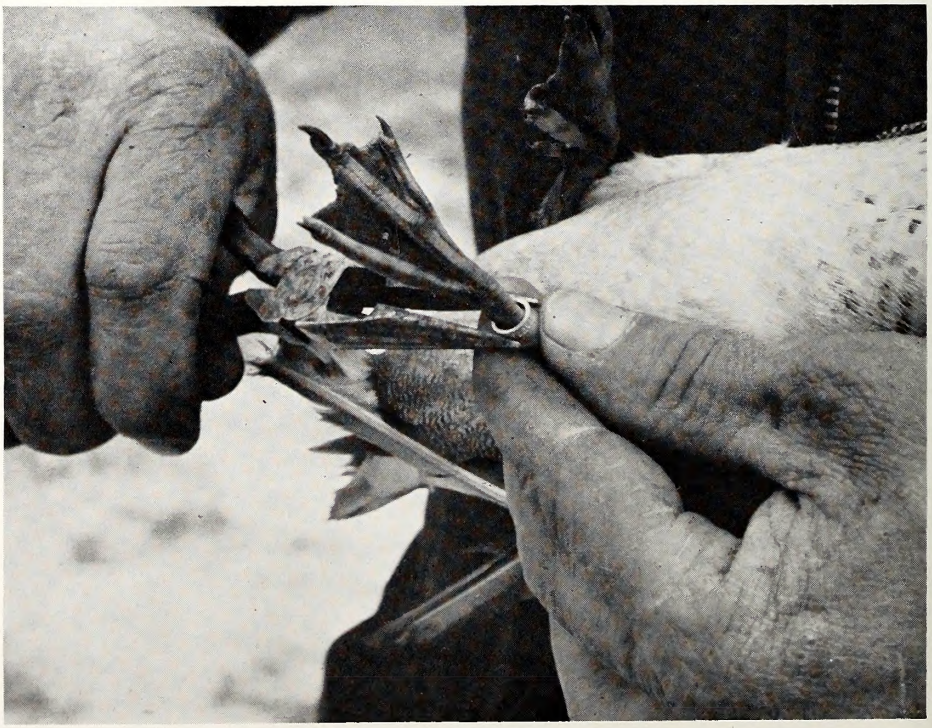
Traps are tended daily and the trapped birds are collected, sorted, aged and sexed, banded and then released. Detailed daily records are kept and the results are forwarded to the bird-banding center at Patuxent Research Refuge, Laurel, Maryland.

During the past two winters nearly 5,000 ducks, geese and coots were banded by state and federal cooperators throughout the eastern and Piedmont sections of North Carolina. Some areas, such as refuges, contain large numbers

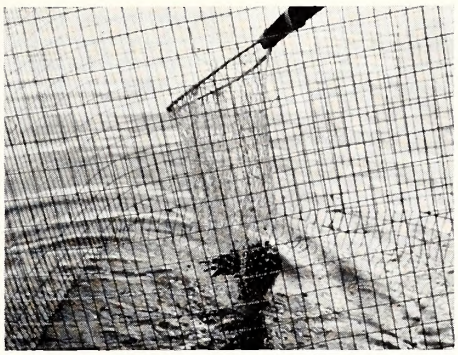
LEFT: Much is still unknown about habits of our migratory waterfowl such as this fast-paced flight of ring-necked ducks.

BELOW: Banding holds the key to unlocking secrets of waterfowl habits. Here a green-winged teal is banded at Orton.

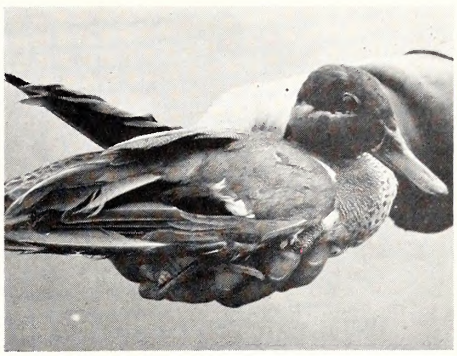
Jim Lee



A refuge worker at Orton Refuge opens the top of a wire trap. Entrance for the ducks is hidden under water of the marsh.



Inside the wire trap a green-winged teal is scooped into a dip net amidst a flurry of beating wings and splashing water.



Momentarily a captive, the little teal is frightened but unharmed. Banding requires only a minute, then the bird is released.

of waterfowl every year. Others have significant populations for only short periods because of diminishing food supplies. When the birds move, the trappers follow with their traps, bands and bait.

Whether trapped on refuges or at temporary feeding sites, the birds are just as uncooperative for the trappers as for hunters; they are usually hungry, unpredictable, and shy.

Trapping of geese is done with cannons, using projectiles tied to large nets. An area several feet in front of the net is baited and watched from a blind. When substantial numbers of geese or ducks are feeding in front of the net, the cannons are fired and the net is shot over the birds.

The workers have banded 726 Canada geese in North Carolina during the past two years using this method. Cannons are usually fired only once or twice a week to avoid frightening birds away from an area.

Ducks and coots are usually trapped in wire mesh enclosures of various sizes and shapes. Traps for diving ducks are made in such a way that the ducks diving for bait will surface inside the traps. Traps for dabbling ducks have entrances above the surface and are usually set in shallow water or on land.

Some duck traps have leads, or funnels, to head the birds into the trap entrance while they are feeding. A few species of ducks, such as the canvasback, black duck and wood duck, are very adept at finding the trap entrance and escaping. The use of fine netting inside the entrance aids in preventing many such losses.

As with other kinds of wildlife, some species of waterfowl are more susceptible to baiting and trapping than others. For example, in attempts to trap the wary canvasback, the less wary and more easily decoyed lesser scaup has frequently consumed all the bait corn and filled the traps before the canvasback got close to the traps. As the result, 2,094 scaup have been trapped in the state during the last two years.

Usually ducks such as mallards, wood ducks, blacks and mergansers and also coots are trapped in singles, pairs, or at most a few at a time. Diving ducks, geese, teal and pintails are often trapped in large numbers because of their strongly gregarious habits. Species such as ruddy ducks, scoters and goldeneyes prefer native foods to corn and very rarely venture into the traps.

During the past trapping season in North Carolina, banding stations have been maintained from Currituck Sound south to Orton Refuge, and from Pea Island National Wildlife Refuge on the Outer Banks west to Gaddy's Pond in Anson County. Following is a summary of two years of waterfowl banding by both state and federal workers.

Waterfowl Banding in North Carolina 1960-61

Species	Number Banded	Percent of Total
Canada goose	726	14.8
Black duck	560	11.4
Mallard	242	4.9
Pintail	214	4.3
Baldpate	19	0.4
Green-winged teal	261	5.3
Wood duck	126	2.6
Canvasback	42	0.8
Redhead	2	—
Greater scaup	30	0.6
Lesser scaup	2,064	42.0
Ring-necked duck	546	11.1
Bufflehead	8	0.2
Goldeneyes	1	—
Mergansers	4	0.1
Coot	67	1.4
Total	**4,912**	**99.9**

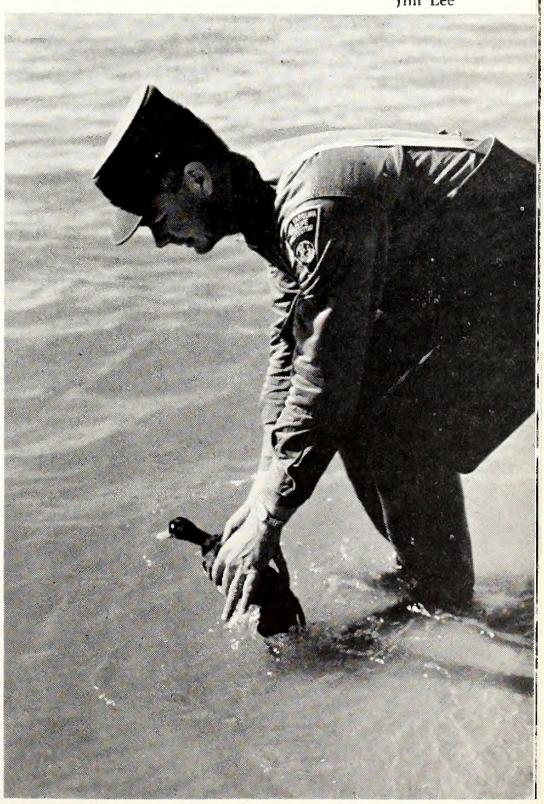
Among the problems encountered during the waterfowl trapping and banding program are weather, predation, and public interference. Freezing weather limits trapping operations and severe tides endanger trapped birds. Predators such as raccoons, bobcats and alligators can reach through the wire or enter traps to destroy captive ducks.

Traps are usually hidden from public view. However, vandalism and trap robbing does occur. Tampering with duck traps or their contents is a serious offense, and persons observing such actions should report them to their local wildlife protectors.

The duck trapping program starts immediately after the waterfowl hunting season and last until March or April. Persons knowing of waterfowl trapping operations other than in these months, or by persons other than state or federal workers should give this information to their county wildlife protector. Remember, it is illegal for anyone, except those holding special banding permits, to trap or hold wild waterfowl at any time or to take them by any means other than by shooting them during the open hunting season.

A wildlife protector, member of a banding team working on the Pamlico River, sets free a scaup wearing a shiny new band.

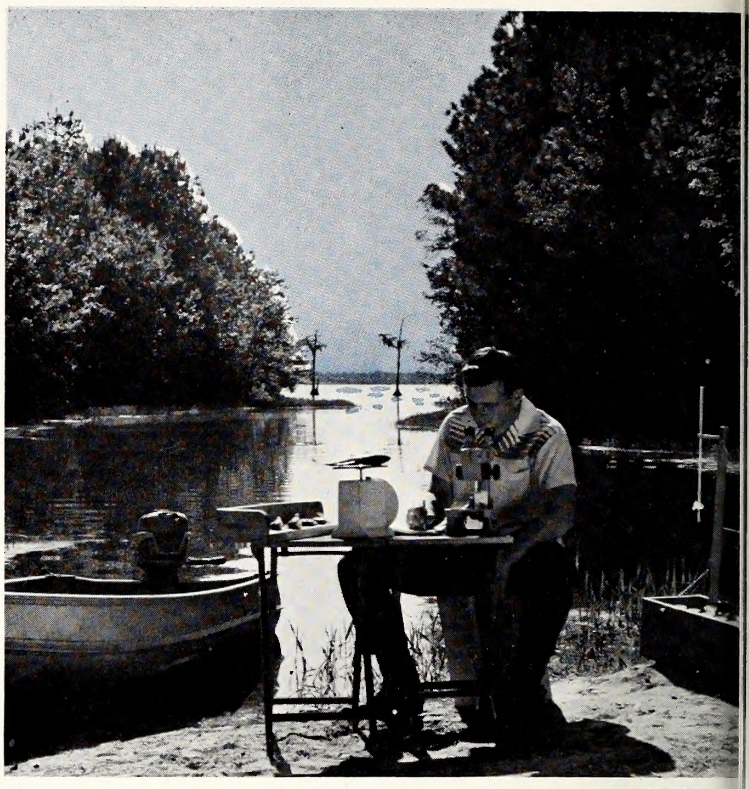
Jim Lee



A Sportswriter Looks At Research

by Dick Pierce
Outdoor Writer, The Charlotte Observer

Research, be it in the field of finance, fission, or fisheries is a time-consuming process; one calculated to try the patience of the most patient angler. Here a leading sportswriter concludes that it does pay off.



Jim Lee

AL Capone's henchmen have just wrapped 200 pounds of chain around Elliott Ness, and this noble warrior against the underworld is just before being made untouchable 200 feet down in Lake Michigan.

When—the telephone rings.

The weary county wildlife protector turns from the television set and Elliott's impending doom, trudges to the persistent telephone, and answers politely.

"Lookee here," spurts an anger-tinged voice, "what's all this jazz about the Catawba Lakes being among the state's best bass waters? I had the week off, went out to them lakes twict, and I didn't catch a dadgummed bass."

The protector draws a deep breath, stifles the word "stupid," and launches a speech of instructive appeasement.

"I don't care what you guys or them biologists say," storms the skunked citizen, "there ain't no bass in them lakes. Now, as a license buyer, I demand . . .!"

After patiently absorbing some more ultimatums spawned in 212 degrees Fahrenheit, the protector returns to the television set just as Elliott, now devoid of his chains, is creeping up on the Capone gang in a westside warehouse.

When—the telephone rings.

"Wanta know something," says another citizen. "What's the matter with my lake? I been making 'em throw back the little ones for years, but they ain't growing none."

The protector says he'll have the district fish biologist come have a look.

"Done had one of them fellers out here," growls the caller, and all he done was tell me I had to drain the lake and start over. But I ain't about to drain that lake—silliest thing I ever heard of. Done spent nine years getting them fish in there."

Extreme cases? Not at all. Just daily samples of how ignorant and belligerent the "license-buying public" can be about the work of the Wildlife Resources Commission's Fish Division. And while the Commission does a splendid job of trying to ease this lack of information, particularly about the work of the division's nine district biologists and its research teams, there's still a lack of statewide understanding.

So, the abuse continues. And it probably always will—until every North Carolina fisherman catches a fish on every catch.

But the Fish Division, just as the game protector who catches the brunt of the complaints, trudges persistently through its programs and toward its goals. And first among these goals is to provide the best fishing possible for the most people for the least money.

The mightiest tool in the struggle to provide good fishing, if not the impossible Utopia of a fish for every cast, is research. Without knowledge of present conditions, there is little hope of improving these conditions.

That's why fishermen should note with interest, if not outright glee, a recently-completed 317-page report on conditions and recommendations for all of the state's major lakes and impounded reservoir waters. It's a compilation of what the fisheries biologists, who joined forces into research teams in many cases, have discovered over a four-year period.

While it's impossible for the Wildlife Commission to supply one of these reports to individuals, due to production costs, every wildlife club in the state should get one to pass around among its members for study. It's in technical language, but it lays out all of the fish factors possible about our inland waters . . . what's right . . . what's wrong . . . and what can be done.

Lee Tebo, assistant to Fish Division Chief J. Harry Cornell, has done a monumental job of coordinating these findings, assembling charts and graphs, and joining with the biologists in determining some answers and recommendations. But as Tebo points out in his summary, the study of reservoir fishing is a relatively new field of endeavor and predictable conditions do not exist.

Adds Tebo: "In the present state of knowledge, it is ob-

vious that each reservoir is an entity, with conditions depending on the characteristics of the individual habitat and the species combinations present. It is not likely that there are two reservoirs just alike and that can be managed in exactly the same way."

The waters in each of the state's nine districts were examined in detail—by species, by weight of fish, which stockings took hold and which didn't, and probable reasons and remedies for all of the adverse conditions found.

While most of the charts, graphs and biological findings would be understood to any extent only by the professional fisheries biologist, the report contains many facts of interest to laymen anglers. And of particular interest is the summary of recommendations which Tebo and his researchers offer at the conclusion of the work:

1—The commercial fishery for white catfish in North Carolina reservoirs should be encouraged and expanded.

2—An attempt should be made to introduce sauger into suitable warm water reservoirs. Reservoirs to be considered are Rhodhiss, Hickory, Lookout Shoals, Mountain Island,

Jack Dermid

The walleye was stocked in suitable waters after careful research. Better fishing was the direct result of this study.

Lake Wylie and all the reservoirs in the Yadkin River drainage.

3—The white bass should be introduced in all suitable reservoirs containing gizzard shad—this to include Hiwassee, Santeetlah, Lake James, Rhodhiss, Hickory and Roanoke Rapids reservoirs.

4—Gizzard shad should be introduced into High Rock and Kerr Reservoirs.

5—A program of fingerling rainbow trout stocking should be conducted in Glenville Reservoir.

6—Except in unusual circumstances the present policy of requesting high level intakes in new reservoirs, particularly where downstream values are involved, should be continued until such time as sufficient information is available to better evaluate this factor.

7—An accelerated program of research into reservoir limnology should be conducted.

8—Research should be conducted into the effectiveness of vegetative planting during drawdown in increasing the fertility of reservoirs.

Jack Dermid

Only with the facts in hand can the biologist manage the fishery properly. Above, creel census cards are checked.

9—Increased use should be made of creel census techniques in evaluating the effects of management programs.

10—Periodic fish population checks and water analyses of North Carolina reservoirs should be conducted to guard against pollution.

While most North Carolina fishermen aren't interested in the scientific side of fish production, but mostly in whether they're catching them or whether they ain't they should concede that these studies are going to be vitally necessary to maintain our inland fishing at its present "very good" level.

The Wildlife Commission's biology program, which soaks up much of its money in salaries and equipment was a recent target for some who opposed the recent increase in license fees.

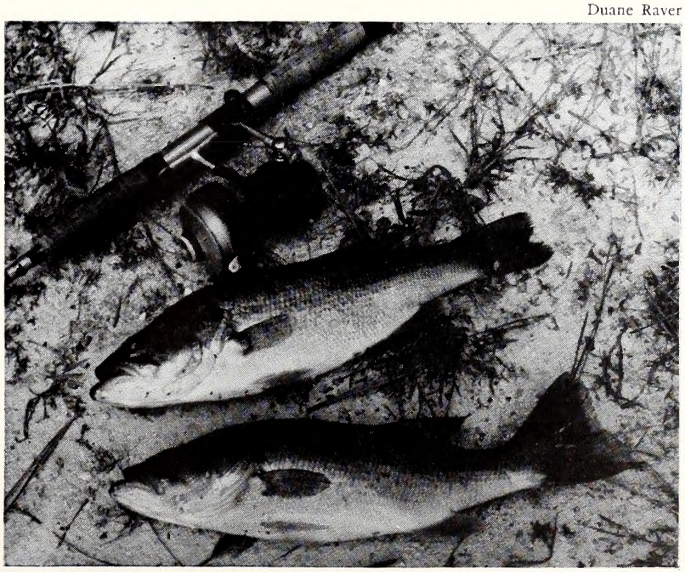
But this job completion report by the Fish Division came at a good time—as packaged proof that the biologists are working, and hard, to make North Carolina fishing better.

It is, necessarily, a lengthy job. It can't be done in a year, two years, and with some problems, not even 10 years. But the continual accumulation of facts and data will supply the answers eventually.

And it will be worth it!

The end result of fishery research is not necessarily "more fish" but rather better fishing for more and more anglers.

Duane Raver



Quarry Bobcat

Photo Feature by Jack Dermid

When necessary, limited predator control is conducted on management areas.

Kenneth Wilson

Top: Rocky outcrops in the Mt. Mitchell Wildlife Management Area are scouted for bobcat droppings. The secretive cats are rarely seen and the presence of their sign aids in the placement of traps. Left: Bobcat tracks, about two inches long, resemble those of large house cats and seldom show claw marks.

After locating a frequently used trail, Lee Boone, refuge manager at Mt. Mitchell, sets a trap beside a hollow log where deer entrails (saved from the managed hunts) have been placed.

WHEN Lee Boone rounded a bend in the trail, he knew that a bobcat had been caught. The forest litter had been torn up where the trap had been and the drag log was gone.

Farther along the trail, Boone spotted the cat, an average-size specimen weighing about 20 pounds. The bobcat was watching Boone's every movement and instead of cowering or trying to escape, he inched forward ready and willing to fight. Here was wildness personified.

Lee Boone is refuge manager at Mt. Mitchell Wildlife Management Area in Yancey County and part of his job is to carry out a limited predator control program. The bobcat is his most challenging quarry. This predator lives such a secretive life that he is seldom seen even when his numbers are relatively high. He feeds primarily on rabbits and other small mammals, but is powerful enough to kill an adult deer and sometimes does. Fawns, of course, are easy victims.

Bobcat trapping is done during their January, February, and March breeding season. Then, they are on the move more than at any other time. But to set a trap and catch a bobcat are two different things. Traps set at random would produce little results. By carefully evaluating signs, Boone determines the location of trails, and experience has taught him just where and how to place his traps along them.

Success is never certain. It may be many days before a bobcat retraces his steps. When he does, he may ignore the trap or steal the bait without being caught. Sometimes traps freeze during cold nights and are ineffective. It all adds up to many back-breaking miles on mountain trails before success is attained.

Besides at Mt. Mitchell, bobcat trapping is also conducted on other Wildlife Management Areas where it is deemed necessary to control them for greater game production. But no effort is made to exterminate them. Bobcats are a part of our wildlife heritage and unless their numbers are excessive deserve a place in the out-of-doors.

Top: It is always exciting to find a bobcat in a trap. This one, ready and willing to fight, inches toward Boone. The trap is chained to a cut sapling which the cat drags about rather than pulling his foot free. Right: The bobcat is a symbol of wildness. Trapping is for control purposes, not extermination.

Both the trap and the bait are hidden in the completed set. Since a bobcat will step over obstacles rather than on them, twigs are arranged to induce him to step squarely on the trap.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Waterfowl Season Opens

First waterfowl shooting gets under way November 10 with the opening of the season on geese. The goose season runs through January 8 with shooting hours from sunrise to sunset. Daily bag is two, possession limit four, with no snow geese permitted. The duck season opens at noon November 21 with shooting hours from sunrise to sunset after opening day, and closes at sunset December 30. Daily bag for ducks is three, six in possession. The daily bag may include not more than one hooded merganser, two wood ducks or two black ducks; possession limit may include not more than one hooded merganser, two wood ducks or four black ducks. There will be no open season on redheads or canvasbacks. The U. S. Fish and Wildlife Service urges that duck hunters kill drakes only, and make all possible effort to retrieve crippled birds.

Ken Wilson Heads Central Wildlife Areas

Ken Wilson, employed by the Wildlife Commission as a field biologist since 1947, has been appointed supervisor of wildlife management areas in Central North Carolina. Wilson has a total of 30 years experience in the field of wildlife management including work with furbearers, waterfowl, small game and wild turkeys, and has recently completed a survey of all wetlands in the state suitable for waterfowl and furbearer management. Part of his new duties will include supervising the development of a waterfowl wintering ground on the Cowans Ford Reservation near Charlotte.

November Tide Schedule for Marsh Hen Hunting

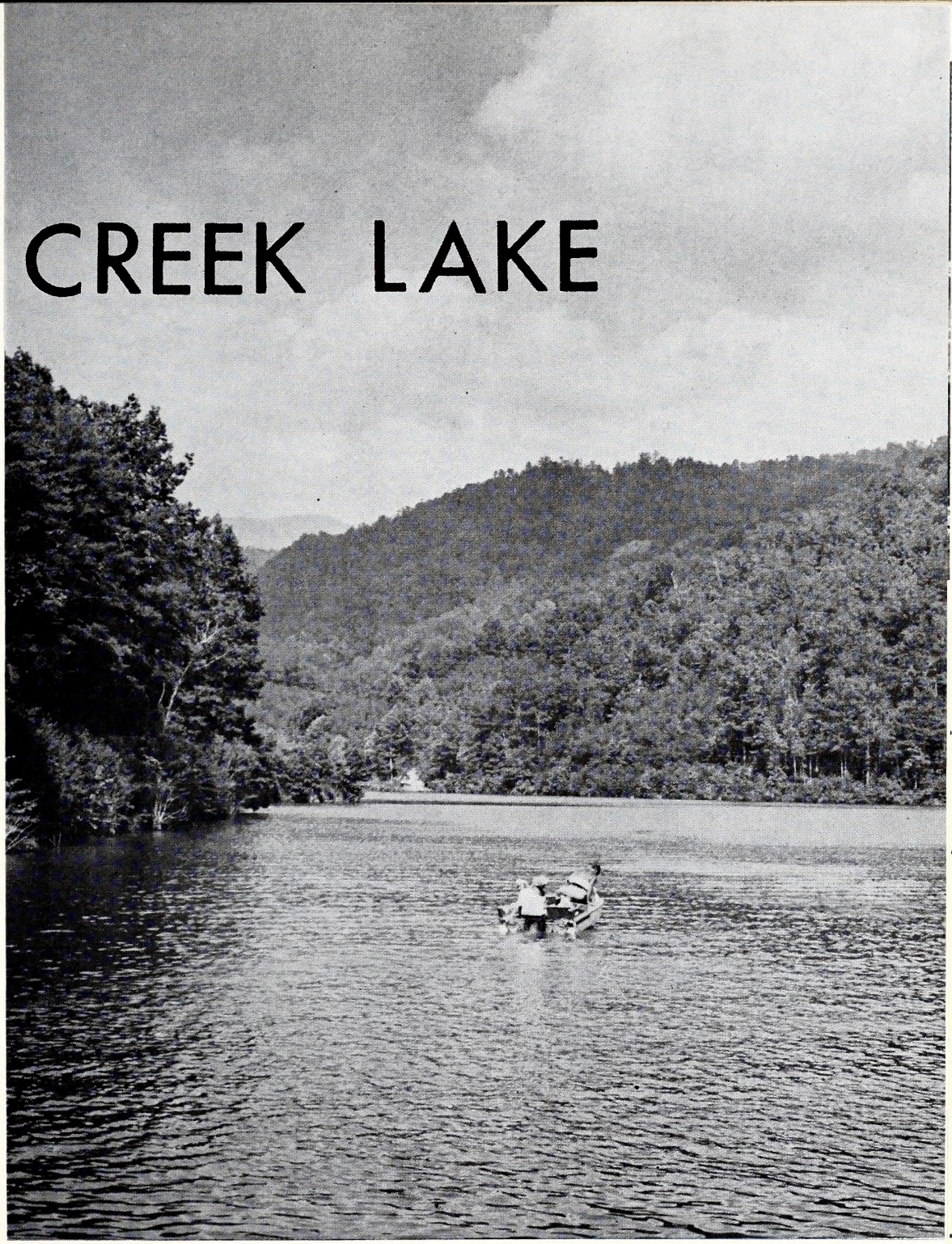
November will have eight days when tides are expected to be high enough for marsh hen shooting along the coast. The season on rails, sora and gallinules closes November 28. Following are dates, tide levels and hours: Nov. 8, 5.0 at 7:27 a.m.; Nov. 9, 5.1 at 8:06 a.m.; Nov. 10, 5.1 at 8:49 a.m.; Nov. 11, 5.1 at 9:35 a.m.; Nov. 13, 5.0 at 10:25 a.m.; Nov. 22, 5.4 at 7:31 a.m.; Nov. 23, 5.4 at 8:17 a.m., and Nov. 24, 5.2 at 9:01 a.m. Times given are for Southport. Add 10 minutes for the Beaufort area.

Mattamuskeet Fishing Closed During Waterfowl Season

Anglers who fish at Lake Mattamuskeet are reminded by the Wildlife Resources Commission that the lake will be closed to fishing during the waterfowl season. Closing the lake to fishing during this period is a safety precaution measure prescribed jointly by the U. S. Fish and Wildlife Service and the Wildlife Commission.

BEAR CREEK LAKE

by Jim Messer
Fishery Biologist



Jim Lee

BEAR Creek Lake in Jackson County is only seven years old, but during its short history the power reservoir has proven to be a fishing wonder. Fishermen using the clear waters in the summer can fish for smallmouth bass, but in the autumn bass gradually slip out of the picture and trout up to several pounds begin leaping at small spinning lures.

The story of Bear Creek Lake illustrates a pattern typical to many high-elevation lakes in the southern Appalachians, and also shows how fishery biologists can measure the resources of a body of water and then take definite action to improve fishing.

In the early 1950's the Nantahala Power and Light Company began impounding a series of small power reservoirs on the East Fork of the Tuckaseigee River and its upper tributaries. The first reservoir, Cedar Cliff, reached its maximum water level in 1952 and the last of the four, Tennessee Creek and Wolf Creek, were completed in 1955. Bear Creek, in the middle of the chain, was completed in 1954.

Before the lakes were built the Tuckaseigee River plummeted almost a thousand feet downward in just a few miles through the Canada Section of Jackson County. And now, although they are located just a few miles apart, the Upper Tuckaseigee lakes are situated close together but vary widely in their surface elevations.

Tennessee Creek Lake, with 39 surface acres, and Wolf Creek, with 176 surface acres, are located well up the water-

shed and have a high water elevation of 3,080 feet. Below, receiving water from both tributaries, is Bear Creek Lake with 476 surface acres and a high water elevation of 2,560 feet. And below Bear Creek is Cedar Cliff, with 143 surface acres at an elevation of 2,330 feet.

This vast difference in elevation is significant in the history of the impoundments, with cold-water trout trapped in the upper impoundments and warm-water species trapped in the lower lakes.

Brown Trout in Bear Creek

Cedar Cliff is located below the steepest gradient of the river bed, and smallmouth bass, bluegills, northern rock bass and other species common in the lower Tuckaseigee River were trapped following completion of Cedar Cliff Dam.

Bear Creek Dam is located above a fairly steep slope in the river, and the section of the East Fork above Bear Creek Dam was not known to have contained smallmouth bass.

There is still some question whether or not this section of the river contained bluegills before impoundment. At any rate, this part of the East Fork had been stocked with brown trout, and they were trapped in the Bear Creek impoundment.

Bear Creek Lake fills a section of an extremely steep and rugged gorge carved by the East Fork. With a maximum depth of almost two hundred feet, the reservoir contains a tremendous volume of water in proportion to its surface. But for surface acreage alone Bear Creek is the third largest body of water designated as public mountain trout water in North Carolina.

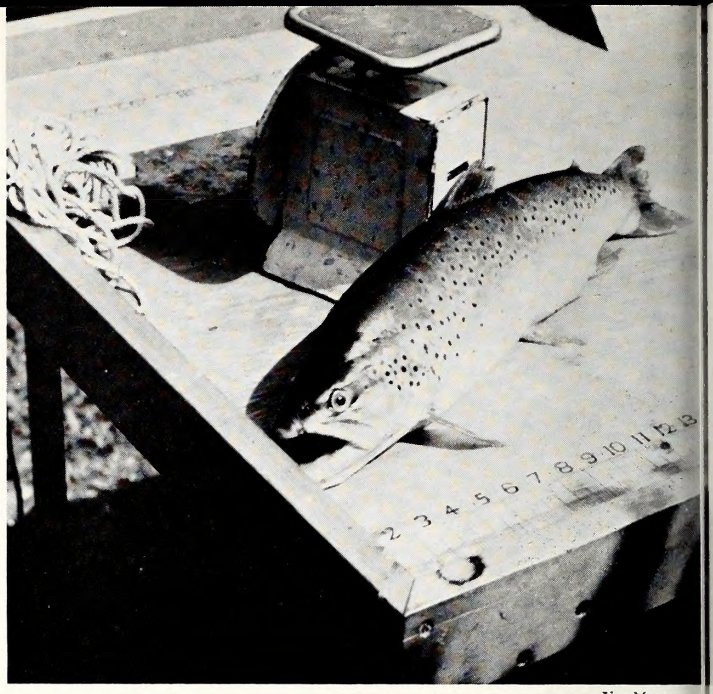
Tributaries of Bear Creek Lake

The waters of both Wolf Creek Lake and Tennessee Creek Lake flow into Bear Creek Lake below. There are also several smaller tributary streams, including Flat Creek, Robinson Creek, Bear Creek and Sols Creek. These tributaries are good trout streams, and provide spawning areas for the trout from Bear Creek Lake.

Robinson Creek, an excellent trout stream, is the largest of the tributaries, flowing into the lake through a large gorge between steep cliffs and forming a deep cove in the lake. Sols Creek tumbles down some high falls within sight of the lake. Flat Creek and Bear Creek slope gently into the lake, and are also important in trout spawning.

The surface of Bear Creek Lake warms during the hot summer of the southern Appalachians; swimmers and water skiers from nearby towns have made this lake a favorite recreational spot.

Jim Lee



Jim Messer

Under the warmer surface waters lurk whopping trout, such as this big brown taken during a biological survey of the lake. Anglers must fish deep for trophy fish such as this lunker.

Troubles From Bluegills

Bear Creek Lake was designated as public mountain trout water when it was completed in 1954, and for the first four years it was opened and closed along with the trout season on trout streams. During this period the lake was stocked annually with rainbow trout. Fishermen were thus restricted to summer angling, and most of them trolled deep-running lures for brown trout, catching fish in the five to eight pound class.

For the first two years this lake produced excellent fishing. But as early as 1956 bluegills became noticeably abundant. By the summer of 1957 bluegills had completely saturated the warm-water level of the lake. These were small fish, most of them less than four inches long.

Thus, when the lake was inventoried in 1957, Bear Creek presented a picture of two populations—a good reservoir for summer fishing for deep-swimming trout, but one with an icing on the cake made up of a layer of stunted bluegills.

The lake was inventoried in July, 1957. Rotenone samples showed bluegills, spottail shiners, northern rock bass, three species of suckers, rainbow trout and dace. Out of the thousands of fish sampled, only five were brown trout. In one sample of several thousand fish, the biologist found 97 percent to be stunted bluegills, most of them under the four-inch mark. But the five brown trout were something else—they averaged just under 25 inches and weighed about seven pounds apiece.

The small rainbows taken in the sample were thin and emaciated, obviously suffering from intense competition from the bluegills.

A Pattern in the High Lakes

A few of the larger lakes in Western North Carolina are situated at relatively high altitudes, and their tributaries

reach up the slopes of some of the highest mountains east of the Mississippi. In the southern part of the Appalachian range the surface waters of these higher reservoirs become fairly warm in the summer. However, not very far beneath the surface the temperature drops quickly while the dissolved oxygen remains unusually high even at extreme depths.

In lakes at lower elevations the dissolved oxygen in deeper water falls below the minimum required for fish life, and often the deepest waters are sterile of fish.

Near the surface of the high elevation lakes are found warm-water game fish such as bass and bluegills. Below, in the tremendous depths where the water remains cold, some of these lakes support magnificent trout populations, usually rainbows that spawn in the tributary streams. During the summer months the trout and the warm-water fish are separated by a temperature barrier as efficient as if there were a fence between the two levels of the lake.

Anglers utilizing these lakes usually fish for bass in the summer and then fish for trout near the mouths of tributaries in the fall and winter. This bass-trout pattern is unique to the southern Appalachians, and more and more fishermen are becoming familiar with it each year.

Applying the Remedy

Bear Creek Lake appeared to hold considerable potential as a combination bass and trout lake similar to the other high elevation reservoirs in the area. But because there were apparently no bass in the cold upper river to begin with, the lake's upper level was densely populated with bluegills.

Everything about the lake suggested smallmouth bass. To give fingerling smallmouths a chance, however, the biologists had to first reduce the number of bluegills present.

On one of the warmest days of the summer of 1958, two crews of fishery biologists descended onto Bear Creek Lake. The crews began working the lake, one on each side, armed with pumps and rotenone. They gave the lake a dose of marginal poisoning, spraying rotenone along the shoreline. Choosing a hot day was successful in limiting the kill to bluegills; the trout were lurking in deep water and not a single one was recorded in the tally of dead fish. Thousands of fish were killed, with about 80 percent of them bluegills.

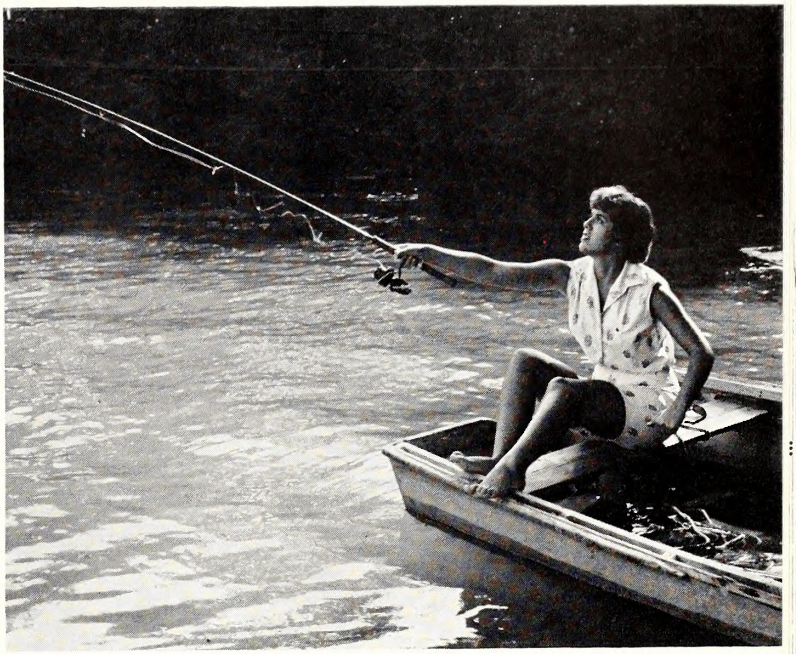
Ten days later some 5,000 smallmouth bass fingerlings were stocked in the lake. They averaged less than two inches in length when they were stocked in July, 1958. By April of the following year some had already grown to legal size. But to assure an adequate population, another group of smallmouth bass fingerlings were added in August, 1959.

Fitting the Pattern

Since 1959 Bear Creek Lake has become an excellent example of a reservoir in which two distinct types of game fisheries are available to the fishermen. The bronze-colored smallmouth bass lurking in the lake have grown big and chunky on their steady diet of bluegills. Although the bluegills are still present in quantity, they provide forage for the smallmouths. And ever so often, a smallmouth comes along to break the monotony of bluegill fishing.

In 1958 the pattern of angling was changed, when power impoundments on the designated trout water list were opened to fishing all year, instead of just during the trout season applied to trout streams. Now the trout fisherman can continue his sport on through the winter in those waters in the power reservoir category.

With the cooperation of the U. S. Fish and Wildlife Service, the Commission's program of stocking fingerling and sub-adult trout in power impoundments has had its effect on Bear Creek. Rainbow trout placed in Bear Creek have filled a gap in the deep cold waters and now anglers have good rainbow fishing even during hot summer months.



Jim Lee

Quiet coves offer steady fishing for bluegills, with smallmouth bass frequently coming along to break the monotony. Because of rugged shorelines boat fishing offers best chances.

When the fall fishing season comes along the trout angler has a golden opportunity to catch a really big trout. The change from bass fishing to trout fishing is gradual, and begins in Bear Creek Lake when the cool water flowing down from the tributaries remains on top of the lake. As the autumn progresses, bass and bluegills slowly disappear, and really big trout become available.

Lake Fishing for Trout

Trout are wary game fish, but there are many ways to fish for them. One of the best methods on lakes in the fall is to use spinning tackle light enough to cast small spinning lures for long distances. Fishing from a boat, the angler can move quietly into coves and cast small spinners over the channels. Wet flies are also popular.

Big trout present a big challenge, and the man who tries for them should cultivate an immunity to bad weather and all the other disagreeable aspects of winter fishing. In fishing for trout in these high lakes, nearly every angler will have days when everything imaginable will go wrong. He who resists the urge to chunk his tackle into the lake will eventually have the right lure working in the right way, at the right place and at the right time. When this happens, the strike is as sudden as lightning and as solid as granite.

When a trout fisherman on Bear Creek Lake hooks a trout large enough to swing the bow of his boat, momentarily he becomes frozen in a state of wide-eyed amazement. An entire lifetime of vivid trout fishing memories becomes mere shadow as one of the Bear Creek lunkers breaks the waters to display his glittering irridescence in the fall sunlight.

Once that big lunker is hooked, the fisherman is hooked also. There'll soon come a time when he feels the urge to return to the Upper Tuckaseigee to begin the search for his **second** big trout. Then he's really hooked!

Nowell teaches a setter to hold its tail properly. A pen-raised quail in a harness and a fishing pole make dog training easy.

Wendell Sportsman Develops New Technique For

Training Bird Dogs

Photo Short by Jack Dermid

THROUGH the years, Bay Nowell of Wendell has spent countless hours training bird dogs by conventional methods.

But not any more! Nowell has developed a technique that he says will teach a puppy to point and hold birds within two weeks, a technique so simple that it requires only five minutes of training a day. The method works on puppies from 8 weeks to 15 months old, but the younger the dogs, the more quickly they learn.

Nowell's technique is based upon using a pen-raised quail restrained by a special harness that he invented. This ingenious harness slips over the head of the bird, around its body under the wings, and snaps snugly in place below. Wearing the harness, a quail can walk or fly normally.

In training pups, a quail wearing the harness is fastened to about eight feet of line on the end of a cane fishing pole. No effort is made to hide the quail from the dog at first. It is part of the pup's education to learn just what he is supposed to hunt. If the pup tries to catch the bird, Nowell raises the pole to put the bird out of reach of the dog. At the same time, he commands the dog to "Ho" and rubs him from head to tail to calm him.

Once the pup has an understanding of what he is supposed to do, Nowell flushes the bird in front of him by raising the pole rapidly. But the quail is quickly returned to the ground, this time out of sight of the dog who has to find it by scent.

When the dogs points the hidden bird, Nowell tells it to "Ho," speaks word of assurance, and works on the dog's style by gently arranging parts of its body into more graceful positions.

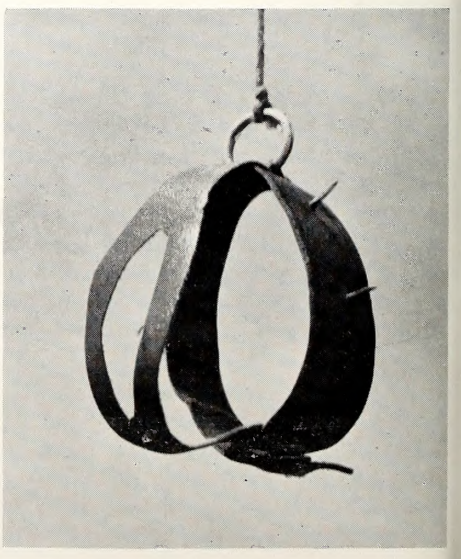
"It's surprising how quickly a pup learns to point and hold and do it well," Nowell asserts.

Quail are not harmed by the training method. Copper spikes in the harness protect them from over-anxious pups that occasionally make a catch.

The spikes make the jacket useful also in breaking adult dogs from chewing birds while retrieving. When a quail has been shot, Nowell tries to find it before his dog does, and without the dog seeing him, slips the jacket on the bird and hides it for the dog to find. When the dog chews on the spikes a few times, he thinks twice before doing it again.

The jacketed quail is under the control of the trainer at all times. It can be snatched up to safety from over-anxious puppies.

The unique harness, Nowell's invention, fits quail snugly without restricting leg or wing movements. Quail are not harmed.



Spikes in the jacket protect birds should they be caught and are useful in breaking adult dogs that chew quail when retrieving.

The Skipper

Conducted by Duane Raver

IT may be a little late in the season for this year, but put this tip in your hat for next season: **beware of the poorly-made ski belt.** Many skiers have come close to tragedy and some have drowned relying on ski belts, thinking themselves well protected. Some belts virtually disintegrated when the skier took a spill at high speeds. Snap fastenings on others gave way leaving the skier yards away from the life saving device.

From the accident reports that have come in where faulty ski belts were involved, it appears that very few of this type of equipment can be trusted completely. The answer well may be to use only approved vests or jackets. One exception to this is a model that is not Coast Guard-approved but which looks like a good one. It is a well-made, plastic foam, back-protecting pad, bonded to nylon webbing and equipped with strong snaps.

The skier's entire back and kidney area is incased and floatation is good. The rig is made by Jones and Yanvell. Whatever you buy and use, be certain that it is constructed for safety under rough conditions.

How Fast?

To check the speed of your boat, measure a mile course or hit a lake or slow-moving river that has mile markers, then run this course at a constant speed. Note your departure time carefully (to the second) and the time of your arrival at the predetermined points. Compare the elapsed time with the table furnished by Outboard Boating Club of America:

Elapsed Time Over Measured Mile	Speed
180 seconds	20 mph
144 seconds	25 mph
120 seconds	30 mph
103 seconds	35 mph
90 seconds	40 mph
80 seconds	45 mph

Boating Quiz

Now that the summer boating season is over it may be a good idea to spend a few minutes in reviewing your general boating knowledge. The true and false quiz appearing below covers many phases of boating. If you can answer all of the questions correctly, consider yourself somewhat of a nautical expert. If you miss two or more you could probably stand a little brushing up.

The United States Power Squadrons and the Coast Guard Auxiliary offer courses in seamanship from time to time. In addition to these classes, you can learn more about boating by reading a few of the many excellent books written on the subject. Boating has grown fast in the last few years and there may be some new ideas you are not familiar with.

Give the quiz a try. A perfect score makes you an admiral; one wrong may still qualify you as a captain; if you miss two you're probably an able bodied seaman but three wrong washes you out and sends you back to boot camp for further training. Good luck!

1. Reversing the motor and accelerating briefly will usually free a propeller of weeds.
2. When docking a boat at a pier, approach into the wind or current.
3. Starboard refers to the left side of a boat when looking toward the bow.
4. Poor idling is often a sign of defective spark plugs.
5. When pulling two water skiers, one rope should be shorter than the other.
6. When a barometer falls rapidly, be alert for foul weather.
7. A safety chain is used to secure a boat to a trailer.
8. Marine growth, such as barnacles and scum, have little effect on boat speed.
9. You can be held responsible for damage caused by the wake thrown by your boat.
10. A boat leaving a dock has the right of way.
11. The skin diver's flag is red with a white diagonal stripe.
12. The water skiing flag is white with a red diagonal stripe flanked by a pair of red water skis.
13. Excessive vibration may be caused by a bent or broken propeller.
14. A bilge pump is used to inflate air mattresses.
15. A knot is a measure of speed rather than distance.

Answers: (1) True; (2) True; (3) False; (4) True; (5) False; (6) True; (7) False; (8) False; (9) True; (10) False; (11) True; (12) True; (13) True; (14) False; (15) True.

"Take it easy," says our boater of the month, "I'm no water spaniel." Don't make boating a dog's life for everybody.

DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

The tail end section of this magazine would be both impossible and worthless without the letters we receive from our readers. We welcome all correspondence, either approving or critical, and are grateful for it.

Timeliness is an important factor that often determines whether a letter may be used immediately or held over until the season again makes it timely.

We work about three months in advance. Material for this issue was prepared last June and July. This means that during the peak of the hunting season the editors and contributors must adjust their minds to warm weather fishing, and must become hunt-minded during the hottest part of the summer, and so on . . .

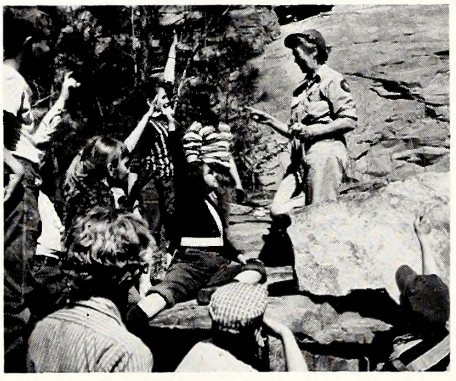
Last June we had a letter from a reader reminding us that with school out, we should admonish kids with BB guns to be careful about shooting beneficial songbirds. It was (and still is) a good letter, but we could not have published it until September. We'll hold it for the June, 1962 issue.

So - - - if you want to unload some opinion on fishing, boating, or other summertime matters, drop us a line during the winter months. Above all, keep the letters coming in.

Publications for Rockhounds

Harry T. Davis, Director of the State Museum of Natural History, has called our attention to two recent publications of general outdoor interest and of particular interest to rock and mineral collectors.

A geologic map of North Carolina is available from the State Geologist's Office, the first published since 1875. Printed on good paper, the map measures 26 by 64 inches, and is accompanied by a 52-page explanatory text. Many man-days of research and field work went into this up-to-date publication, which should be invaluable to the student and to the professional geologist. Priced at $3.00, the map and text can be obtained from the State Geologist, Raleigh, (add 9¢ tax).



From the study of geology comes a better understanding of our most basic resource, soil. With knowledge comes appreciation.

For the touring rock collector there is another publication, *Mineral Localities of North Carolina,* by James Conley. Published in 1958, the 86-page booklet lists known places of mineral occurrence, with lists of counties where the minerals occur. There are also enlarged sections of county maps, and several illustrations of cut and uncut minerals of interest. This booklet, priced at 50 cents, is also available from the State Geologist's Office, Raleigh, (add 2¢ tax).

For Teachers, Parents, Youth Leaders

An excellent series of Nature Bulletins is published by the National Audubon Society, 1130 Fifth Avenue, New York 28, N. Y. There are 65 Bulletins in the set ($5.95 plus 55¢ postage and handling). Written by authorities, the Bulletins are non-technical, illustrated with photographs and line drawings, notebook sizes 8-1/2 x 11 inches, four to six pages. Subjects include:

18 GOOD TEACHING AIDS
16 ANIMALS AND HOW THEY LIVE
7 INSECTS AND SPIDERS
10 PLANT IDENTIFICATION
14 CONSERVATION OF OUR NATURAL RESOURCES

Free folder listing titles and price of individual Bulletins will be sent by the Society upon request.

Wild Geese Flying South

The earliest winter visitors ever recorded at Gaddy's Wild Goose Refuge arrived on September 16, when 12 Canada geese flew in. An estimated 15,000 wild geese and ducks winter from October through March at this private refuge near Ansonville, established in 1934 by the late Lockhart Gaddy.

We All Make Mistakes

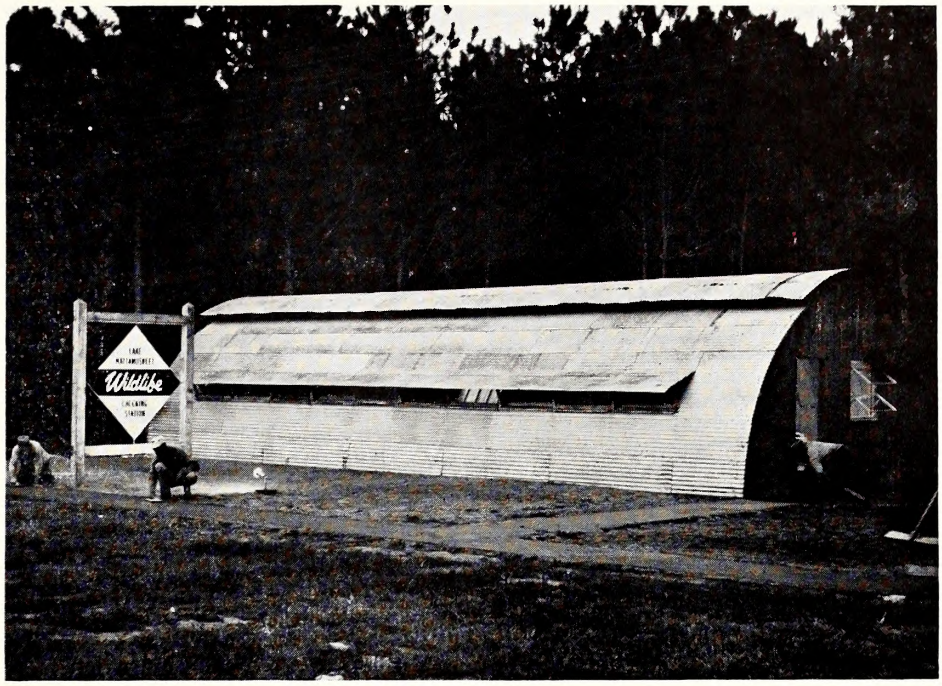
DEAR SIRS: Safety is one thing that our Wildlife Magazine has always been trying to drive home to the hunters of North Carolina, and I have become a more careful hunter because of it. That is why I had to look twice, to believe my eyes, at a picture in your September issue. I

could not believe that you would put such a picture as that anywhere but in the "Do Nots of Hunting." Look on page fifteen and see one of the most common hunting errors. I believe you will see your error at the same time. Young boys learning to hunt are greatly influenced by our example.

Careless mistakes are often made, some cost lives! We have a good Wildlife magazine and I am sure that all Tar Heels appreciate the hard work that goes into the making. CHARLES H. HAMBRIGHT, FAYETTEVILLE.

Thank you for calling this to our attention. Jack Dermid, who took the photo, says that the trailing hunter was walking well aside from the path of the man ahead of him, but this fact does not show in the picture.

Hunters make mistakes, - - - and so do editors. Let's *all* be careful.—Ed.



Waterfowl hunters at Lake Mattamuskeet will use this new checking station located on N.C. Highway 94 near the south end of the causeway crossing the lake. The building is a joint N. C. Wildlife Commission—U. S. Fish and Wildlife Service project.

Information Please

DEAR SIRS: Fred Kelly, who asked for information on books about Venus's-flytraps, will be interested in the article in the May 1961 issue of National Geographic if he has not already seen it. It is well illustrated and informative. MRS. RICHARD HILL, WILLIAMSTON.

Wildlife in India

DEAR SIRS: Did you know that Wild-Life in North Carolina is being used in the classroom in South India? I thought you might be interested in the enclosed letter. PAUL H. ALBRITTON, JR., LUMBERTON.

DEAR MR. ALBRITTON: Greetings in Christ from a missionary in India. You must be wondering who I am and why I'm writing you. I am a school teacher in an American school and have just received a magazine that you had kindly given to "Aunt Janie" who, knowing the needs of school teachers, regularly sends us packets of used magazines. I've just gone through the December issue of Wildlife in North Carolina, on the back cover of which I found your name and address. I am taking this magazine with me to the classroom tomorrow so my class may read it and enjoy it, too. We wish to thank you (I'm going to write Mrs. Hargrave, too) for making this contribution to our class in biology. I teach seventh grade, by the way.

If you have more magazines of this type which you feel will be of interest and good instruction for our class, we wish that you'd keep us in mind and pass them on to Mrs. Hargrave with the request that they be earmarked for us, please. Again, thank you, and may the Lord reward you for your kindness. ALBERT SHAW, KODAIKANAL, SOUTH INDIA.

A Place to Hunt

DEAR SIRS: Many thanks for the pamphlets and data which you mailed to me on August 10. This information will be most helpful in compiling the hunting guidebook.

North Carolina (which, incidentally, is my home state and where I became addicted to hunting at an early age) seems to be well out front in the matter of trying to provide places for the hunter to hunt. In that connection, the reported Wisconsin "recreational easement" program would seem to have much merit, and I would like to know if you are working on that or a similar plan.

I'll also appreciate your keeping me advised of additional places to hunt in North Carloina, if any turn up. Thanking you, THURMAN T. SCOTT, THOMASVILLE, GA.

DEAR MR. SCOTT: Since our organization is limited to the administration of wildlife resources as contrasted to the more varied responsibilities of organizations such as the Wisconsin Conservation Commission, we are not in a position to develop for "total" recreation. We have for many years, however, conducted a program of active co-operation with private as well as government land owners furthering opportunities for hunting and fishing.

We have leases from many private individuals, power companies, lumber companies, municipalities, and federal agencies for big game and small game hunting areas, fishing areas and fishing access areas. A recent development has been our dove shooting area program which is outlined in the enclosed article.

We appreciate your interest in our program and this opportunity to be of service to you. Please advise if we can be of further help. Very truly yours, FRANK B. BARICK, CHIEF, GAME DIVISION.

Grapes are Old

DEAR SIRS: Can you give me information on the "mothervine" on Roanoke Island? I understand that the scuppernong vine is near Manteo.

Thank you. JOE H. PIPER, GREENVILLE, S. C.

DEAR MR. PIPER: The origin of the "mothervine" on Roanoke Island is obscured in history.

The scuppernong grape was originally found along the low grounds of the Scuppernong River (Tyrrell County). Some of the first explorers under Amadas and Barlowe, lieutenant of the Sir Walter Raleigh expedition, 1584-85, transplanted a small vine with its roots to Roanoke Island. From this introduction has sprung up the mother vinyard of historical interest, just north of the town of Manteo.

At one time a winery operated on the island selling its product under the name Mother Vinyard Scuppernong Wine. In

PROTECTOR OF THE MONTH

Troy M. Sigmon

Troy M. Sigmon, Columbus County Wildlife Protector, was born in Caldwell County, April 8, 1930. He graduated from high school in Valdese, North Carolina.

Prior to his employment with the North Carolina Wildlife Resources Commission, he served two years in the U. S. Navy aboard the Submarine U. S. S. Redfish. Troy was employed as a Wildlife Protector on October 1, 1953, after having completed the pre-service training school for Wildlife Protectors at the Institute of Government in Chapel Hill. He has also completed four in-service training schools.

Troy is Scout Master of Troop 504, a member of the Chadbourn Rotary Club and the Chadbourn Methodist Church. In June 1958 he received a "National Conservation Award" from the Woodmen of the World. In October 1958 he received the "Protector of the Year" Award. Troy is married to the former Nancy Faye Moore of Connelly Springs, North Carolina, and they reside in Chadbourn, North Carolina.

ENFORCEMENT RECORD FOR AUGUST

HUNTING & FISHING:	
Persons checked	10,539
Total prosecutions	505
Total convictions	498
Total cases not guilty	3
Total cases nol prossed	4
Total cases dismissed	0
Total fines collected	$2,738.15
Total costs collected	$3,836.10
BOATING:	
Boats checked	3,656
Total prosecutions	253
Total convictions	249
Total cases not guilty	4
Total cases nol prossed	0
Total fines collected	$ 895.75
Total costs collected	$2,082.84

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

Our scientists and naturalists
Whom we trust to put us right,
That we must have a limit,
And not shoot into the flock;
CUT DOWN OUR CRIPPLING LOSSES:
Increase our breeding stock.
And under new restrictions,
When the birds come down this Fall,
SHOOT WITHIN A CERTAIN LIMIT
Or, we may not shoot at all.

So, to keep the wildfowl flying
In the days and years to come,
Keep your head, know what you're doing,
"CALL YOUR SHOT!"

Bill Baxter
Wilmington, Delaware

Next Spring . . .

DEAR SIRS: I think North Carolina has a very good magazine. I have been taking it for about a year.

I would like to see an article on camping in North Carolina. We want to go camping next summer at the coast. We did not get down this time. You may have written some articles on this as I'm almost a new subscriber. CHARLES L. CARTER, ADVANCE.

We hope to publish an article on camping late next winter or in the early spring. Camping, especially family camping, is one of the fastest growing national hobbies since America took to small boating.—Ed.

mid-1950 the winery was sold and the wine bearing that label today is made in Virginia by the Virginia Dare Wine Company, another name of historical interest borrowed from North Carolina.—BILL HAMNETT, Wildlife Education Representative.

"Call Your Shot"

There's a law laid down in billiards
Which the sportsman now employs,
When the ducks head up into the wind,
And come to the decoys:
NAME YOUR BIRD and KNOW THE SPECIES,
And always take the drake.
"CALL YOUR SHOT!"

Before the marshlands' drainage,
When the big flights came along,
We brought in all that we could kill
And never thought it wrong:
Before our modern firearms,
And ducking clubs to boot,
There was one restriction only,
"Are they close enough to shoot?"

Now our wildlife experts tell us,
Who study trends and flight,

New officers of the Wildlife Commission were elected recently. Left to right are G. E. Beal, Red Oak, Secretary; Robert M. Carr, Wallace, Chairman; and James A. Bridger, Bladenboro, Vice-chairman. The officers will serve the remainder of 1961.

Lucretia Writes Again

DEAR SIRS: Can you tell me why they build television transmitters so tall? LUCRETIA PLYMPH, WAKE FOREST.

Simple. They build them tall so they can put red lights on them so airplanes won't hit 'em.

DEAR SIRS: For some time now I have been trying to get in touch with Lucretia P. at Wake Forest. My letters are returned marked "Unknown" and she is not listed in the telephone directory. Do you have her correct address or telephone number? JOHN HAY, DES MOINES.

We cannot imagine Lucretia being unknown in her home town. She gives her address as Wake Forest, N. C., but her letters are postmarked so obscurely that we can't dechipher the name of the town where they are mailed. Since she does not subscribe to our magazine we suspect she reads it in the barber shop.—Ed.

Loons

Several years ago state and federal wildlife protectors rounded up more than 100 persons around Shackleford Banks who were doing some early spring loon shooting. Loons are protected by both state and federal law, and the only possible commercial or practical value they have is the adaptability of certain wing bones for making fish lures. Mr. Harry Davis of the State Museum sends along this item on the subject of loons as a matter of passing interest:

"In the Chicago Natural History Museum Bulletin there is an item that recalls the discussions on loons.

"Jonathan Carver left a Journal of his 'Travels Through the Interior Parts of North America 1766, 1767 and 1768.'

"He says of the loon: 'These birds are exceedingly nimble and expert at diving, so that it is almost impossible for one person to shoot them, as they will dexterously avoid the shot by diving—. It requires three persons to kill one of them, and this can only be done the moment it raises his head out of the water as it returns to the surface after diving.'

"Carver writes that the loon flesh is very 'ill-flavored' but that it 'repays the trouble taken to obtain it, by the excellent *sport* it affords.'

"According to the Chicago Museum this is the first mention of killing for *'sport'* by white men in America. Obviously the birds were shot on the water, perhaps when in their non-flying moult. The American Indians then used the dried skins of loons to make cases to protect their newly acquired guns.

"Thus we learn of early loons that later became valued for their wing-bone fishing squids and food for humans on the Carolina Coast."

U. S. Forest Service by Daniel O. Todd

To celebrate the fiftieth anniversary of the Weeks law of 1911, pioneer conservation legislation permitting purchase of new national forest lands, the U.S. Forest Service held ceremonies at Asheville recently. District Forest Ranger William M. Palmer (right) inspects the new dedication sign as Pisgah National Forest workers Dave McFalls and Ben Elliott complete sign erection. The sign marks the entrance to the 8,000-acre Burke-McDowell tract, first purchase, near Marion, North Carolina.

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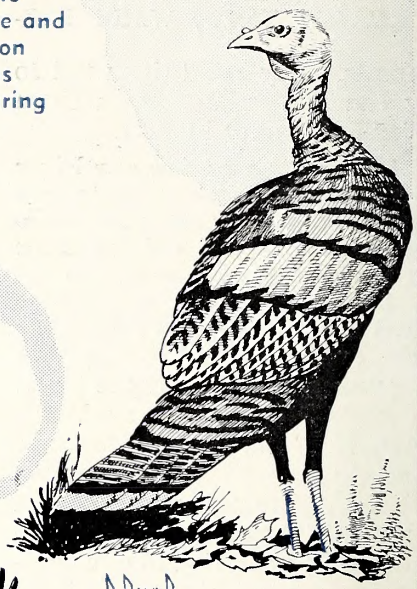
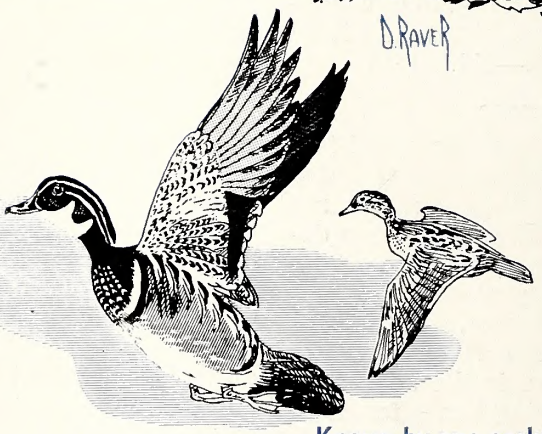
Wildlife and Thanksgiving

The Thanksgiving table of the Colonists probably was set with venison. Deer were numerous in wooded sections of 17th century North Carolina.

Early North Carolina settlers found wildlife in abundance and no doubt dined frequently on wild turkey. Barbecuing was a favorite method of preparing the Thanksgiving turkey.

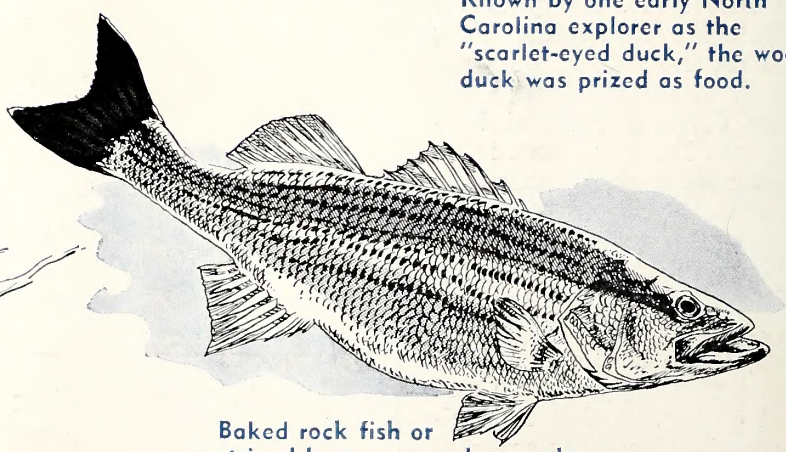


An unusual delicacy for Thanksgiving feasts of the 1600's was roast opossum. It was used in place of pork.



Known by one early North Carolina explorer as the "scarlet-eyed duck," the wood-duck was prized as food.

Gone forever are the passenger pigeons that once darkened the skies with their huge flocks. They can teach us a Thanksgiving conservation lesson.



Baked rock fish or striped bass appeared on early North Carolina tables at Thanksgiving.

PRINTED BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

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Wildlife in north carolina

ten cents

december 1961

Jack Dermid

Season's Greetings . . .

. . . from the North Carolina Wildlife Resources Commission and its entire staff. May the coming year bring you outdoor adventure in abundance and safety. And may your forests be filled with deer and wild turkeys, your fields teeming with quail and rabbits, and your marshes alive with waterfowl.

Wildlife in north carolina

The official publication of the NORTH CAROLINA WILDLIFE RESOURCES COMMISSION, Raleigh. A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina.

State of North Carolina

TERRY SANFORD
Governor

North Carolina Wildlife Resources Commission

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COVER

Nothing makes the duck hunter quite as unhappy as a "nice day" during the duck season. Blue skies and cottony clouds seldom find the ducks moving, but the mallards on this month's cover seem to be enjoying the flying weather. The sunlight catches the light gray underparts and reflects from the white wing feathers. The drake with his green head and reddish breast overshadows the hen in her buffy ensemble. Placed in the category of "puddle ducks," mallards prefer shallow water for their feeding. When the greenheads come winging your way, let them get close enough for clean kills. Use a retriever and don't lose the cripples. Painting by Duane Raver.

WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

Entered as second class matter at the Post Office at Raleigh, North Carolina, February 23, 1948, under the act of August 24, 1912.

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SUBSCRIPTIONS—Fifty cents per year, one dollar for two years. Make remittances payable to WILDLIFE RESOURCES COMMISSION. Any employee of the Wildlife Resources Commission may accept subscriptions, or they may be forwarded to Post Office Box 2919, Raleigh, N. C. Stamps cannot be accepted.

ICE WATER ANGLING

by Duane Raver

Photos by the Author

Don't let winter scare you out when it comes to fishing. It may be a little rough at first, but the sight of a nice fish coming aboard can cure the chills in a hurry. Waters aren't crowded, fish are usually cooperative, and the tackle fairly simple.

PRODUCTIVE mid-winter angling is a commodity that's often a little hard to come by, even here in the sunny south. Inland, largemouth bass hit on some of the warmer days, bluegills cooperate on bait by fishing fairly deep, and crappies feed much of the winter. But for good consistent catches, you'll do well to investigate the short, sluggish streams entering the coastal sounds and large rivers of eastern North Carolina.

Any way you slice it, fishing in December and January can be rough. If fish you must (and you may be missing some real fun if you don't) go prepared with plenty of warm clothes and a thermos of hot soup. Select the milder days and hit the water no earlier than 9:30 a.m. and fish until 3:00 or so in the afternoon. Where to fish? There are many meandering streams (actually they flow very little, except under wind action) entering the various rivers and sounds from Elizabeth City to New Bern that may provide action.

The big name among fish in these winter havens is "striped bass." The rock (as they're called locally) move in during the fall and seek out the deeper holes for winter feeding. Here they rub fins with black bass, crappies, yellow perch, pickerel, speckled trout, and even a few flounders. And all these fish are caught right along with the striper during the winter months.

The water which you fish most likely will be comparatively small say, less than 50 yards wide and three to ten miles long. It's deep though surprisingly so in view of the flat terrain around it. Water shallower than three feet simply can't be found. Drop-offs of 10 feet are common. The water that you probably will be fishing will be from 6 to 12 feet deep.

Rough water kicked up by mid-winter winds is seldom a problem. A 12- to 15-foot boat is fine, and a five horsepower motor is adequate. Glass or metal hulls may save you some repair jobs, since light coatings of ice are the rule as you start out in the morning, and wood hulls can be sliced by the sharp, skim-ice. This same ice makes a swim a little chilly, so take extra caution with your boat. A life jacket actually may be as welcome for warmth as for a life saving device in the water.

Confronted with new water of any sort, the fisherman has a real problem in knowing just where to start. One answer is to start at the beginning. Drop a line over as soon as you leave the landing unless you've gotten wind of a particularly hot spot. As with any other fishing water, these coastal streams have a lot of dead water which will be unproductive. But it's difficult in knowing just which stretches this might be.

Although trolling may put you into striped bass sooner than aimless casting, the fish are more than likely cruising the deeper holes of the stream. This means that casting is about as apt to pay off as any other method. Keep in mind that lurking beneath you are stripers that may hit 25 pounds, and that 5-pounders are quite common. This calls for pretty substantial tackle.

Many trollers come armed with stout boat rods and heavy

reels loaded with 30-pound test line. Ordinarily, a medium weight spinning rod, dependable spinning reel and 10-pound test line is plenty. Spin-casting rods and reels are popular and even standard casting tackle will do. Over half your catch probably will be fish other than striped bass. The lighter the gear, the more the fun.

One of the rather startling things about this fishing is the persistent reliance on one or two lures. At first glance this seems foolish; several fish later, you're convinced. One of the top casting (and trolling) lures is the white bucktail jig. Many of the anglers that consistently take home nice catches, tie on a "butter bean" type jig first thing and simply don't switch all day.

And you can't argue with success. The lure runs deep, where most of the fish are; it takes every species that will

Warm clothing and insulated footwear are as important to a successful trip as the right lure. Mid-winter fishing temperatures often hover between 35 and 40 degrees. Be prepared!

hit artificials in the creek; it snags as infrequently as any; and it's easy to cast.

Although striped bass and others are caught on a dozen lure types, you will do well to have a supply of 3/8 ounce to 3/4 ounce jigs on hand. And a "supply" is more than likely what you will need. The bottoms of these sluggish creeks are usually tangles of logs and brush. Frequent hang-ups are the rule. You will find that a "de-snagger" can save you some jigs. One type is made like this:

Take a three-ounce sinker, attach 30 feet of heavy line; snap on a heavy-duty snap-swivel to the eye of the sinker. When you do encounter a tough snag, snap the weight to your line and drop it down to the trouble spot. Most of the time a few jiggles will free your lure. It's worth a try.

There are really no rules to finding these mid-winter fish, and when you do they may move right out from under you.

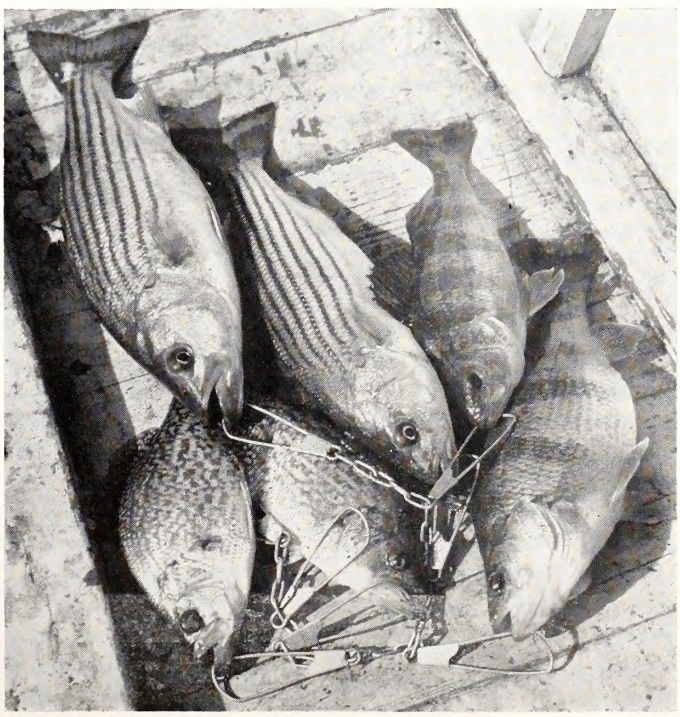
These trollers are working a stretch of Blount's Creek in Beaufort County. This is one way of finding fish in winter.

Generally if you snaffle one, stick around for more action. Since even the nice size rock fish tap the lure lightly rather than jolting it, you never know from the strike what will end up in the boat. Successive casts may net you a black bass, fat yellow perch, a glistening white perch, dark-colored crappie, or the pearl-gray striper.

Many of the prime mid-winter fishing spots have suitable boats for rent but it's best to take an outboard. Weekends when the fishing is good, arrange for a boat ahead of time; you won't be fishing alone. Some weekdays you may have the creek just about all to yourself.

Pick a 50° day next week, grab a handful of bucktails and head for the nearest coastal creek. Fish deep and slowly and see what you come up with from the ice-water grabbag.

Angling in December produced these crappie, striped bass, and yellow perch. You never know what will hit in coastal creeks.



Are your dogs ready for the strenuous challenge of roaming field and forest? One of the most serious diseases of dogs, heartworms can take the pleasure out of hunting for both you and your canine companion. In this article a leading veterinarian discusses heartworms and treatment.

Jack Dermid

Heartworms and Your Dog

By Martin P. Hines, D. V. M., M. P. H.

Chief, Veterinary Public Health Section,
N. C. State Board of Health

Photos Courtesy of American Veterinary Publications (Canine Medicine) and Dr. W. S. Bailey, Auburn University, Auburn, Alabama.

HUNTERS always get more satisfatcion and pleasure out of their dogs if they start early in getting them ready for the hunting season. A dog cannot be in top shape if infected with parasites. One of the most serious parasitic infections of dogs in the South is heartworms. As I write this article, I am treating one of my own pointers for this infection.

The Parasites

The heartworm, **Dirofilaria immitis,** is primarily a parasite of the dog, but may be found occasionally in cats, foxes, coyotes, and wolves. The adult worms are quite slender and vary in length from 6 to 12 inches. They are whitish in color.

Heartworms are normally found in the right ventricle of the heart, but in heavy infections they may be found in the pulmonary artery. Upon autopsy, they often resemble a mass of "spaghetti" packed in the heart. Occasionally adult worms are found under the skin, in the eye and between the muscles. They are not transmissible to humans.

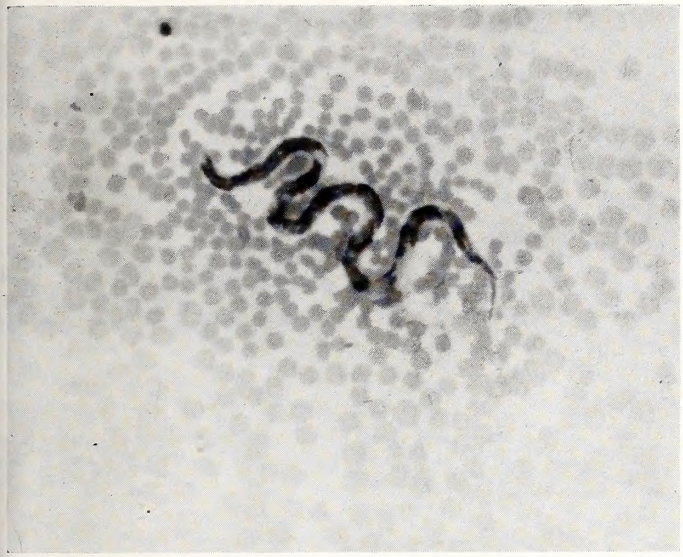
Life Cycle

Most species of parasitic worms which enter the blood stream of the host remain there for only a few minutes or hours. However, the group (filariids) of which the heartworm is a member, is of necessity found in the circulatory system. The adult female heartworm does not lay eggs, but does deposit living embryos in the blood stream. These embryos are called **microfilariae** and can be seen only when a drop of blood is carefully examined under a microscrope.

The microfilariae circulate in the dog's blood stream where they wait for the arrival of a blood sucking intermediate host. Several species of mosquitoes serve as intermediate hosts and experimental findings suggest that the flea may be involved as the insect vector, or carrier, in the transmission of heartworms.

When taken with a meal of blood, microfilariae undergo a period of growth and development in the body of the insect intermediate host before they become infective larvae and capable of becoming adult heartworms. This period of development takes about 10 to 14 days. The infective larvae are then transferred back to the dog when the insect vector feeds, but first must migrate to the subcutaneous and intramuscular connective tissues where they undergo further development.

The time required for the worms to reach maturity before migrating to the heart and adjacent blood vessels is believed



This highly magnified picture shows the microfilaria of Dirofilaria immitis in a stained smear of blood. The embryo heartworm is carried through the dog's blood stream to his heart.

to be several months. Adult worms may live for as long as five years. The fact that many untreated dogs remain infected for life indicates that there is perhaps little development of protective immunity in the dog.

Distribution

Heartworm infection is encountered in all parts of the United States, but it is found most often in the coastal regions of the Gulf of Mexico and the Atlantic Ocean. The density of both salt marsh and fresh water mosquitoes is greatest in these areas. The infection appears to be spreading to the central and northern United States because of the increasing transportation of dogs between these areas and the highly enzootic areas of the south and southwest.

Symptoms

The most common clinical symptoms noted by the dog's owner are chronic cough and lack of stamina or rapid fatigue. These are generally observed during or after vigorous exercise. It is possible, though unlikely, for a heavily infected dog to show no symptoms.

Resembling a mass of spaghetti packed in the dog's heart, the mature heartworms, Dirofilaria immitis, force an extra workload on the infected dog and rapid exhaustion in the field.

Mechanical interference by the adult worms in and around the heart valves is believed to be responsible for the symptoms, causing an extra heavy work load on the heart. Other symptoms frequently seen in heavy infections are the accumulation of fluids (ascites) in the abdominal cavity, swelling of the legs, eczema-like skin lesions and anemia. Dogs with advanced clinical symptoms may have organic heart damage.

There is a difference of opinion among research workers as to the damage done by the microfilariae seen on blood examination. However, when they leave the vascular system, they do produce varying degrees of damage in the lungs and other internal organs and tissues.

I have seen bird dogs collapse in the field and gasp for breath, but after resting return and hunt normally for several hours. This experience is apparently related to circulatory distress caused by the mechanical interference mentioned previously.

Diagnosis

A clinical diagnosis of heartworms can only be confirmed by finding the active microfilariae in the blood. In 1956 research workers demonstrated that two types of microfilariae were present in the dog. These microfilariae **(Dirofilaria** and **Dipetalonema)** must be differentiated by the veterinarian while examining the blood. This is accomplished by measurement (length and width) and the nature of the posterior end. Heartworm microfilariae usually have a straight end while **Dipetalonema** have a "button hook" end.

The adult **Dipetalonema** are not found in the heart and have no disease significance. Heartworm microfilariae may persist in the blood for as long as 18 months to two years after the adult worms have been destroyed by treatment. Adult heartworms may also be found in locations other than the heart and therefore animals that have microfilariae in blood may not always have adult worms in the heart.

Treatment

The treatment for heartworm in dogs is quite complex and serious and should be attempted only by a veterinarian. It is often desirable to hospitalize the dog so that it can be under constant observation. There is no single drug at present which will destroy both adult worms and microfilariae; therefore it is necessary to use separate drugs for each stage of this parasite. Dogs with long standing infections and showing severe clinical symptoms are poor treatment risks. When adult worms are destroyed by treatment they are swept into the pulmonary arteries with resulting embolism and frequently death. For this reason dogs under treatment should always be confined for three weeks following treatment. They should never be hunted during treatment or for 3 to 4 weeks afterwards.

In some areas of the United States where heavy infections exist, particularly Florida, preventive annual treatment to destroy the young adult worms is being recommended. Your veterinarian can advise you on the merits of this system in North Carolina. Control, aside from treatment, is not practical for it is obvious one cannot protect an animal from the bites of mosquitoes.

In conclusion, it should be pointed out that heartworm infection is not limited to hunting dogs, but is more often recognized in work dogs because of the stress and exercise with which they are subjected.

Jim Lee

Sportsmen's
and Where

CASH registers in North Carolina played a merry tune last year as they rang up an estimated $104 million in sportsmen's dollars. That astounding total, collected from hunters and sportfishermen, bought such diverse items as midnight snacks, outboard motors, and duck stamps.

That figure of $104 million is no casual estimate pulled from an editorial hat. Cooperating with the U. S. Bureau of the Census, the U.S. Fish and Wildlife Service has published a national survey of fishing and hunting in the United States for the year 1960. And the national figures confirm what has long been suspected—hunting and fishing in the Tarheel State is one of our biggest industries.

The national survey was based on interviews with a responsible adult within each of some 18,000 households, representing 45,000 persons 12 years of age and older. Trained interviewers worked carefully with selected groups of people to make the results as reliable as possible.

Big Business Everywhere

Hunting and fishing is big business everywhere, according to the national survey, and the army of sportsmen is growing. So is its outlay for goods and services connected with the sport. An earlier survey, conducted in 1955, showed that 24.9 million fishermen and hunters spent $2.9 billion. By 1960 hunters and fishermen had increased to 30.4 million, while their expenditures jumped to $3.9 billion.

Some of the sportsmen reported no expenses at all. But for some 29 million hunters and fishermen, the cost of their sport averaged $126.56 each for the year 1960.

For the average sportsman, the cost can be broken down as follows:

Food and lodging	$12.37
Transportation	17.89
Auxiliary equipment	39.86
Fishing and hunting equipment	21.81
Licenses, tags and permits	3.64
Duck stamps	.15
Privilege fees and entrance fees	2.40
Bait, guide fees, miscellaneous	20.03
Other expenses	8.41

The above represents the average expenditures of what the survey terms "substantial participants." The total num-

Dollars They Went

Hunting and fishing in North Carolina were worth $104 million last year—yet of this whopping total only $2.6 million was spent to protect and improve the resources that brought this huge sum. For those who wonder if the cost of hunting and fishing licenses is too high, this disproportionate balance between the two figures should be very revealing.

by Jim Lee

ber of participants was estimated at 50 million persons among the 130 million age 12 and over.

The average of $126.56 per year takes into account some 9 million people who both fished and hunted. When considered separately, the annual cost of either hunting or fishing by themselves is somewhat less.

For some 24.3 million fishermen, the cost of a year's sport was estimated at $106.26 on the average. For 14.3 million hunters, the annual cost was $79.34.

South Atlantic States

The survey considered differences in geographical regions. North Carolina was included in the South Atlantic states, among Maryland, Delaware, the District of Columbia, the two Virginias, South Carolina, Georgia and Florida.

In the South Atlantic, the survey revealed that 24.9 percent of the population fished or hunted or both. Those who did both accounted for 7.4 percent of the population. Persons who fished only represented 13.4 percent of the population, and those who restricted their sport entirely to hunting amounted to 4.1 percent of the population of these states.

Contrasted to the South Atlantic's 24.9 percent participation in one or both sports, residents in the Middle Atlantic region are less involved in wildlife sports, with only 13 percent hunting and/or fishing. But one third of the eligible population—33.3 percent—of those living in the West North Central region, from the Dakotas to Kansas and Missouri, participated in some wildlife harvest.

North Carolina's Share

North Carolina's share in the national survey was not shown directly in the published report. Survey samples were taken in coastal and inland areas throughout the country, and the smallest breakdown published in the report was for the South Atlantic states and other regional areas. From the 1960 census figures, however, we can compute a good estimate of what happened in the Tarheel State.

The 1960 census showed a United States population of 179,323,200 persons of all ages. North Carolina had a population of 4,556,200. This gives us 2.54 percent of the total. But when considering hunting and fishing activities, we find that the higher rate of participation in the South Atlantic

The average fisherman's expense for his sport may seem high, at first glance, with a national figure of $106.26. Yet, depending on where you live, the cost can be according to your taste and may range from a few dollars to a few thousand in a year.

Jim Lee

Jack Dermid

Licensed commercial shooting preserves offer ring-necked pheasant and pen-reared quail—at a price. The cost of a day's hunting, when all the factors are considered, is not out of line and these areas are often quite successful. While not the answer to the needs of all North Carolina hunters, the areas do divert some pressure from other private and public lands.

states gives us a somewhat higher percentage, 2.72 percent of those taking part in hunting or fishing or both.

Taking 2.72 percent of the national expenditures, we find that North Carolina's sportfishing dollars amounted to some $73,192,000. Hunting expenditures came to some $31,585,000 —for a whopping total of $104,777,000 spent for hunting and sportfishing in 1960.

North Carolina had, by this estimate, 828,000 sportsmen who hunted and/or fished. Of these, 247,000 sportsmen took part in both activities. There were 447,000 who only fished; thus the fishing public totalled 694,000 persons aged 12 and over. There were 137,000 sportsmen who hunted exclusively. and 384,000 could be counted as hunters.

What the Tarheel Dollars Bought

North Carolina's $104 million, if spent in the same manner as the national average, purchased the following items:

Food	$ 7,706,000
Lodging	2,435,000
Automobile transportation	14,409,000
Bus, air, rail, water travel	401,000
Boats and boat motors	23,965,000
General auxiliary equipment	9,029,000
Fishing and hunting equipment	18,055,000
Licenses, tags and permits	3,015,000
Duck stamps (incl. non-hunters)	125,000
Leases and privilege fees	637,000
Bait, guide fees, outboard fuel	16,583,000
Other	6,966,000
Total	**$104,777,000**

The above figures show what North Carolina sportsmen would have spent had they conformed to national averages. Because of differences in population patterns, hunting and fishing habits, and legal requirements, these figures don't conform completely to information available from other sources.

The Wildlife Commission's total hunting and fishing revenue, including such miscellaneous sources as timber sales and magazine subscriptions, was only $2,651,000—compared to $3,015,000 that could be expected if North Carolina's licensing laws conformed to those of most other states.

A Confused License Picture

The national survey points out clearly the differences that exist between the states in regard to license requirements. Licenses are required for saltwater fishing, for example, in only two states. In 1955, when the earlier survey was conducted, more than half the states exempted persons under the age of 16 from the requirement for fishing licenses. By 1960, this exemption had been removed from all but nine of the 50 states. North Carolina is among the remaining nine.

In the United States in 1960, approximately 66 percent of the fishermen were licensed. North Carolina, with only 322,000 licensed among an estimated total fishing public of 694,000, fell far below the national average with 46 percent of the fishermen carrying the financial burden for everyone.

Disregarding the saltwater exemption, which applies to practically all states, North Carolina has two fishing license exemptions which cause the financial burden of supporting fish management and protection to fall on the shoulders of less than half of those receiving the benefits. Were the licensing requirement lowered to age 12, the Tarheel State would add nearly 100,000 to the license sales. Were the present exemption for those fishing with natural bait in their county of residence removed, the cost of conservation would be equitably distributed among all who benefit.

And North Carolina could expect added benefits if our laws were changed to license a greater percentage of fishermen. Under the Dingell-Johnson Act, Federal Aid to fish restoration and improvement is apportioned to the states on the basis of 40 percent for land area and 60 percent for the number of licenses sold. North Carolina's share of Federal Aid funds now suffers because such a low percentage of our fishermen are licensed. Were the exemption on natural bait fishermen removed, the Tarheel State could anticipate a much larger—and fairer—share of Federal Aid funds.

In the hunting license picture North Carolina shows up remarkably well. Based on percentage of national hunting and fishing populations, North Carolina should have 384,000 "substantial" hunters. In 1960 North Carolina licensed 384,-182 hunters including non-residents—slightly more than the predicted total and a tribute to the attitudes of Tarheel sportsmen and the efficiency of Tarheel wildlife protectors.

But perhaps the most revealing aspect is the national average of expenditures made for hunting and fishing licenses. For every hundred dollars of sportsmen's money spent during 1960, less than $3.00 went into hunting and fishing licenses —the sportsman's surest way of protecting and improving the resources from which his harvests are made.

Fall brings the rutting season for the white-tailed deer. The rut continues from October to February. The mature males shun any contact with the does after the end of the breeding season.

Whitetail Through the Year

Text by Jack Larimer

Illustrations by Wallace Hughes

THE whitetail is the most numerous and popular big game animal in both North Carolina and North America. A growing horde of Tarheel hunters currently takes an estimated 24,000 deer annually. The habits of the wary and resourceful target of this enthusiasm are well worthy of study.

The white-tailed deer is the most tolerent of our big game species. In contrast to the buffalo, elk, moose, and other relatives, the deer can live close to man with little difficulty. Few large animals are capable of such eye-popping increases in numbers when the basic needs of food and shelter are matched by good management.

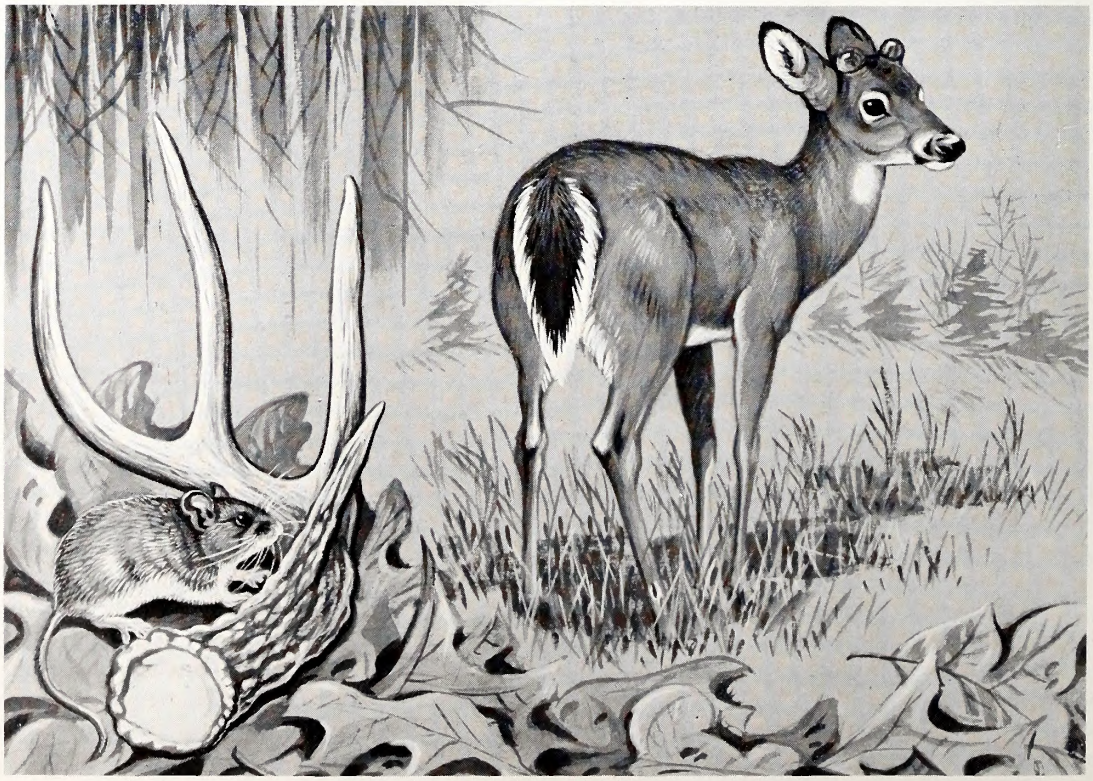
Much of the deer's tolerance is explained by his life history. The rutting season (above) covers most of the fall and winter months. On good range, about a third of the fawn does will be bred and produce a single fawn. Yearling does will drop an average of 1.5 fawns. Adult does will bear an average of two fawns, usually as twins and sometimes triplets.

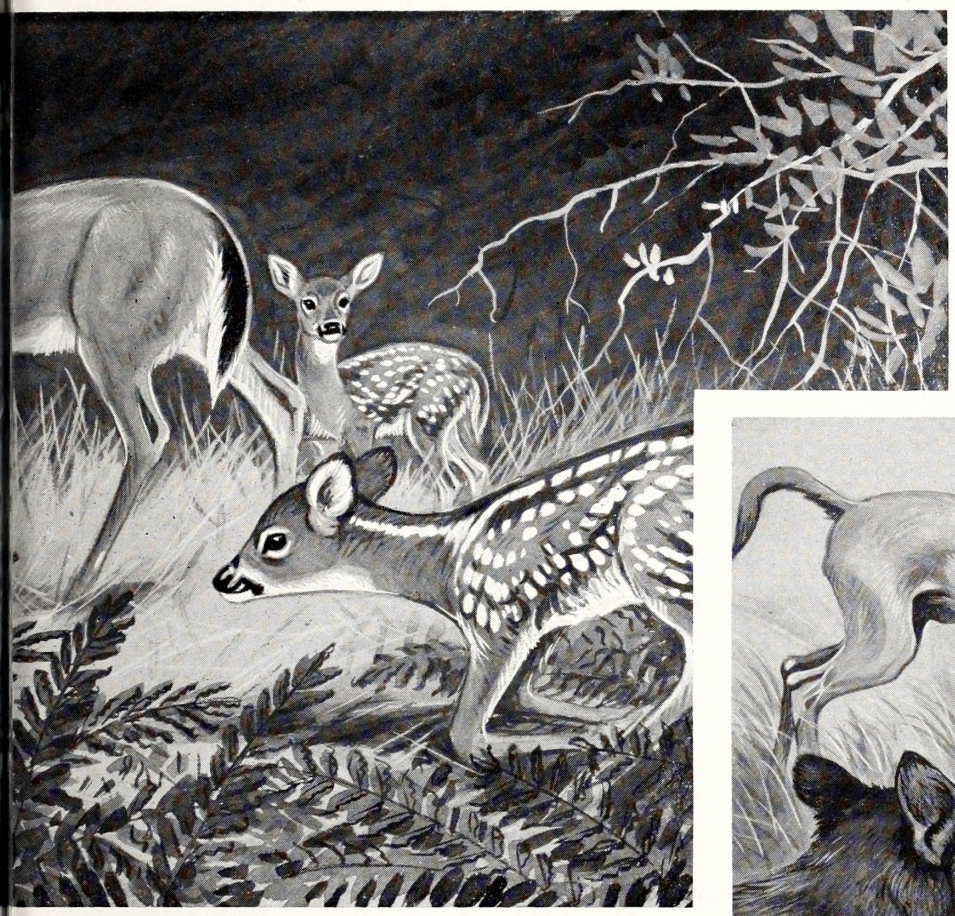
Plain arithmetic will show that the fawn crop can mean a 20 to 40 percent annual increase in herd size. Production, like antler growth and weight, is affected by age, heredity and geography, but most importantly by the quality and quantity of food.

Whitetail Through the Year

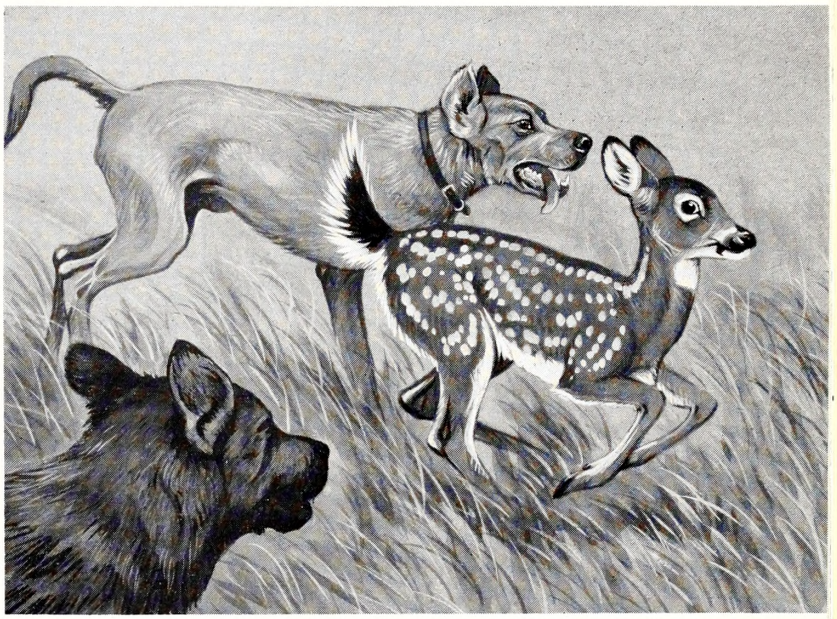
Winter is the critical time for most animals, and many whitetail problems can be traced to food shortages from January to March. While few deer die just of starvation, parasites and disease find susceptable animals on badly overbrowsed range.

New antlers begin growth in April and May to replace those shed during the winter. Velvet is rubbed off and racks are usually hard by autumn. Dropped antlers are gnawed by forest rodents.





Fawns are dropped from March to September, with a peak in June. Young fawns have almost no odor, and depend on good camouflage for safety. Greatest hazards are thoughtless people and self-hunting dogs. Such dogs are a problem in many areas.



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at for harder times to
The red summer coat
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by a warmer gray
coat which grows dur-
ptember and October.

Whitetail Through the Year

MANAGEMENT of the white-tailed deer has been one of the outstanding successes in the entire field of wildlife. In areas where deer had been gone for many decades, careful use of the tools of wildlife management has restored the white-tail to the level where annual harvests can be made.

Yet even today many problems remain unsolved. Most of these problems lie not with the animals but with man. If illegal and out-of-season hunting were eliminated, and free-running dogs controlled, deer would spread to many more of North Carolina's counties. Elsewhere, deer have created problems by their steady increase. Many existing herds can be kept in balance with their range only when the public recognizes the need for doe hunts and proper harvests.

Does give birth wherever they may be at the onset of labor, and are devoted and efficient parents. During the early period when fawns are nearly helpless, the doe usually approaches them only at feeding time. At other times she keeps at some distance to avoid drawing predators to their hiding place.

Fawns weight 5 to 7 pounds at birth. They nurse several times daily on the doe's rich milk, and begin adding browse to their diet after two or three weeks. Their diets are the same as those of adults at the end of four months.

Bucks take no part in raising the fawns. Males remain solitary during summer months, when growing antlers are soft and sensitive. Bucks breed first as yearlings, showing their maturity by swollen necks and antler growth.

Almost all of the whitetail's food is vegetable matter. Diets vary with season and availability, with the amount and quality of food during critical winter months being the limiting factor in how many healthy deer can be carried on the range.

Studies on the Pisgah area indicate that winter food supplies would support only about one-third as many deer as would the same ranges during the summer.

Fawn production by well-fed deer may be double that of animals on overbrowsed range. Bucks in the yearling class on overpopulated areas may, at best, grow spikes—in contrast to racks with several points on deer of the same age on good ranges.

Legions of eager hunters pursue the whitetail in the fall. Doe harvests are often needed to keep herds in line with the food supply, with antlerless harvests becoming common.

NORTH CAROLINA WILDLIFE

RESOURCE-O-GRAM

A ROUNDUP OF THE LATEST WILDLIFE NEWS

Fishing Licenses Expire December 31

The Wildlife Resources Commission reminds anglers who have been using state or county fishing licenses that these licenses expire on December 31. Combination hunting and fishing licenses are valid until next July 31.

Boat Registrations Show Slight Gain

Wildlife Commission records show that only slightly more than 39,500 boats were registered during 1961. This is an increase of less than 2,000 boats over the 1960 registration total. 1960 was the first year boat registration was required by law. This year's increase is believed to be due to the purchase of new boats and registration of boats brought in from other states or not in use during 1960.

Christmas Subscriptions to WILDLIFE

Inside the cover of this issue is an order blank designed to make Christmas shopping easier. The order blank insert can be removed, names and addresses filled in and sent to Wildlife, Box 2919, Raleigh. Earliest orders for gift subscriptions will be given priority treatment, and recipients of gifts will get a copy of this issue while the supply lasts. The circulation department will send a card notifying people of the gift.

December Biggest Hunting Month

December is the big month for hunting in North Carolina. The seasons are open on every type of game except marsh hens during some part of the month. Incidentally, North Carolina has the longest deer hunting season for archers of any state in the country. The Tarheel archery season got under way September 25, 18 hunting days in advance of the gunning season, and runs through January 1. Nebraska, where deer were once almost extinct, ranks second to North Carolina in the length of archery deer season.

Applications for Planting Materials

District biologists are now accepting applications for shrub and sericea lespedeza and annual food patch planting materials. These materials are distributed to landowners free as a part of the Commission's program to improve habitat conditions for farm game. Application forms may be secured from your district biologist or by writing the Game Division, Wildlife Resources Commission, Box 2919, Raleigh.

Blinds at Mattamuskeet

At press time, many blinds remain open during the last two weeks of the waterfowl season at Lake Mattamuskeet. Applications and reservations can be obtained by contacting L. B. Tunnell, Refuge Manager, New Holland, North Carolina.

Burlington's New City Lake

by Mrs. Mable Lassiter

Burlington Recreation and Parks Department

FIND a need and fill it! That is said to be the cry of the twentieth century, and Burlington folks have done just that. In today's world of modern inventions, up-to-the-minute conveniences and current happenings, the rule still gives evidence that a need of the people, plus planning and consistent work, can become a reality.

This idea was put into action in Burlington with the acquirement of the new Lake Burlington facilities. A dam has been erected to store up an estimated three billion gallons of water, thus providing this area with an extra reservoir of drinking water and also with a beautifully wooded and landscaped park and marina. Here people of this section can spend their recreation hours picnicking, boating, sailing or water skiing without traveling a great distance from their homes.

Approximately 750 surface acres are now covered in water backed up by a towering concrete dam that only a few months ago turned rolling woodlands into one of the largest bodies of water in this section of the state. Almost every day during the construction period, interested citizens were on hand to see the high walls of concrete rising up from the creek bed, for Stoney and Toms creeks were being persuaded by modern engineering and construction to lend their waters for the city's use.

A center for water sport enthusiasts, here is an attraction for family recreation that has been needed for a long time. Especially on weekends, the marina becomes a beehive of activity as cars approach the check-point station, pay the fee and launch their boats for several hours of fun. In another section, nearer the entrance, a sprawling parking lot accommo-

dates large crowds of people who continue to pour into the park and marina area. More than 50 different cities have been registered to date on the check-point log.

Lined around a natural point of land at the marina one may see dozens of motorboats which suddenly seem to glide out and send thousands of ripples on the mirrored surface of the water. Dozens of boat owners have found a recreational outlet here at the marina, and occasionally a sudden breeze fills the white sails of a sailboat and billows them against the horizon in full view of spectators on the shore.

A spray of water gushes from behind a boat as skiers skim the water for almost the entire five-mile length of the lake, moving gracefully, skillfully, mechanically. Even the very young get into the skiing act, and this summer almost all teen-agers in this section were as anxious to learn to ski as they were to acquaint themselves with the latest dance steps. In fact, water skiing came into its own as a recreation and now ranks as the number one water sport in this area.

Lake Warden Dan Viers, who has watched the lake grow from slender finger of water into its present capacity, says that boats to pull skiers have been in such demand at the lake that youngsters often stand in line and wait their turns. However, special emphasis has been placed on water and boating safety, with members of the N. C. Wildlife Resources Commission presenting demonstrations at the marina for the benefit of the public.

Members of the local teen-age club council have gone out on several occasions in a body to the marina for boating, swimming and skiing safety instructions. With America's families taking to the water for recreation, safety is a paramount concern.

Look With Pride

Folks in Burlington look with pride to this project that for so many years was only a dream. It was not until September, 1958, however, that a bond election opened the way for the facilities to become more than sketches on paper or discussions in council meetings. By April of that year plans were completed and contracts awarded with the actual work on clearing thousands of acres and construction of the dam getting underway in July.

Dynamite, giant cranes and bulldozers moved into the Stoney Creek area and began the task of removing tons of stubborn rock and acres of timber. Only a few months later a giant spillway stretched 345 feet across Stoney Creek, and 80 million pounds of cement had been poured to form the barrier that now backs up water over hundreds of acres.

By spring of this year the undergrowth had been cleared, pine seedlings set out, the banks sown with grass, parking lots laid out and graveled, buildings erected and an access road cut through the wooded area leading from the highway entrance. Cover crops were planted on the shoreline to keep down soil erosion. A floating safety line made of styrofoam blocks was thrown up across the lake just above the dam as a measure designed to keep boats from penetrating the area too near the top of the dam. From the state nursey, the city of Burlington purchased more than 55,000 loblolly pine seedlings which were set out during the winter season.

Warden Viers safeguards the lake with a lake patrol boat, traveling the entire area many times a day, checking boats and often suggesting safety precautions or issuing warnings. With his concession stand operators, a checkpoint worker and several utility employees during the summer, he has supervised the maintenance and upkeep of the popular rec-

Water skiing has become one of the most popular activities at the new municipal water supply lake near Burlington, with miles of open water available to all water sports enthusiasts.

reation facility, pointing with pride to the first year of operation without one accident.

Viers is firm in his conviction that the marina area is "to the public's liking," for the wooded sections and hillsides sloping down to the water in the park area are crowded every weekend with warm weather picnickers. And, it isn't unusual to see an entire family bring along folding cots and chairs or their baby's playpen in addition to their picnic essentials.

Joe Davidson, Director of Recreation and Parks, joins Lake Warden Viers in pointing out the potential facets of recreation in addition to those presently engaged in at the lake, for there are other attractions in store. Duck hunting and fishing are two major recreation projects for the immediate future that will create a suitable environment for fishermen and hunters in this section. Promise of this began last year when the lake was stocked with more than 400,000 fingerlings. Bluegill, shellcrackers and largemouth bass were stocked in the waters. By the spring of '63, with proper spawning and growth, local fishermen will be able to spend countless hours on the lake with bountiful catches to their credit.

A Promise of Hunting, Too

The building of duck blinds adjacent to the shorelines has already started through the efforts of the Alamance Wildlife Club. The club made the primary plans, laid out specifications and drew up diagrams in the interest of fall and winter hunting in this area. Already ducks are flying in to the lake, and feeding preparations being carried out in early fall gave evidence that a supply of ducks would be on hand when the season opened.

With interest seeming to mount with each month's operation, it is easy to see that the new park and marina facilities are filling a definite need for many among Burlington's growing population. But all this was not accomplished through the mere magic of waving a wand! The reality of a park and marina has demanded work and concentration, detailed planning, rules and regulations to safeguard the area and the folks who enjoy its benefits.

But this sprawling facility that is enriching the lives of so many people has now become a dream that materialized because of people who held tight to an idea and were not willing to release their grasp on it.

Jack Dermid

Women, too, were represented in the contest. Here, Betty McCord, Atlantic City, New Jersey, unhooks a young black drum.

Teams of anglers with their beach buggies dotted the sand at Nags Head. They were equipped to tackle any denizen of the sea.

NAGS HEAD *Surf Fishing* TOURNAMENT

THE beach at Nags Head was an exciting place November 12-14 when the 11th Annual Surf Fishing Tournament was in progress. Nearly 250 anglers, fishing in individual and team competitions, cast into the surf to see who would catch the most and the largest fish. They came from as far away as Massachusetts.

Although no large drum were caught this year, puppy drum up to nine pounds, scrappy blues, and a host of other fish kept reels singing. A North Carolina team, Albemarle Anglers' Club of Elizabeth City, won the top award. Second-place honors went to Barrington Rod and Reel Club, Barrington, New Jersey.

Jim Lee Resigns as Managing Editor

JIM LEE, managing editor of **Wildlife in North Carolina** and a wildlife education representative for the Commission since October, 1954, has resigned to become a public information officer for the Bureau of Land Management, U. S. Department of the Interior.

Lee, a native of Durham, graduated from Duke University in 1951 and holds a Master of Forestry degree granted from the same institution in 1952.

For two years he was director of the Durham Children's Museum in Durham before joining the Wildlife Commission's Education Division staff.

While with the Wildlife Commission he has written and illustrated articles for the magazine, and has also authored many of the Commission's news releases and newspaper features.

He has been an active member of the North Carolina Outdoor Writers Association and the American Association for Conservation Information, and currently serves on the six-member board of directors of the national information organization.

Lee has also been an active National Guardsman. At present he is information officer for the 30th Infantry Division, North Carolina Army National Guard.

Lee's resignation was effective on November 10. He will be assigned to the Washington office of the Bureau of Land Management, which is responsible for the management of some 3 million acres of public domain lands in the western states and Alaska.

Along with other duties Lee will edit the bureau's quarterly conservation magazine, **Our Public Lands,** handle news releases and write television scripts.

The Skipper

Conducted by Duane Raver

UNLESS we're blessed with one of those balmy winters which happen once in a blue moon, chances are that most of our boating for a while will be in the basement or boathouse. But it's a fine time to get those things done that simply got pushed aside during the summer season. Perhaps you found something that should be altered on your craft that will enhance its performance and safety. Now don't go changing it unless you have a good, solid reason for doing so; all you may do is upset the apple cart.

One thing to check is the fuel compartment of your boat. Let's hope that no trouble developed during the year, and right now maybe you can prevent future trouble. Gasoline fumes constitute a potentially deadly explosive, and when touched off by a spark or open flame create an awesome force. These fumes leak out of the best of tanks and systems, or come from spilled fuel. Fumes have a tendency to settle in low places and collect in pockets.

Many outboards have special compartments where the fuel tanks are stored. Some of these compartments are well ventilated, some are almost air-tight. A few may appear open to the atmosphere when actually they are not. Also back in this space (usually near the motor) is the battery for the electric starter. Put these two together—the battery spark and collected gas fumes—and a fire extinguisher is pointless. The result is most always total destruction of the boat.

Be certain of adequate ventilation of the fuel compartment. Add plenty of holes and vent pipes if necessary. Check the battery connections. Go over the fuel lines making sure that no pin-point leaks are spraying out gasoline under the high pressures of the system.

Refueling is a critical time, but when done correctly may prevent later trouble. It's best and safest to remove the fuel tanks from the boat before adding fuel. Be sure to put out cigarettes and open flames. If gasoline spills over the tank, wipe it away completely before replacing the tank. Gasoline and oil soaked rags can create a hazard too, and should be disposed of.

Fire in the boat is rough; its prevention, fairly simple.

Winter armchair boating can be productive if you take time to learn more about safely equipping and operating your craft.

Evinrude Motors

Jim Lee

Sails are furled for another season. How was your boating year? More than 30 boaters died in North Carolina in 1961.

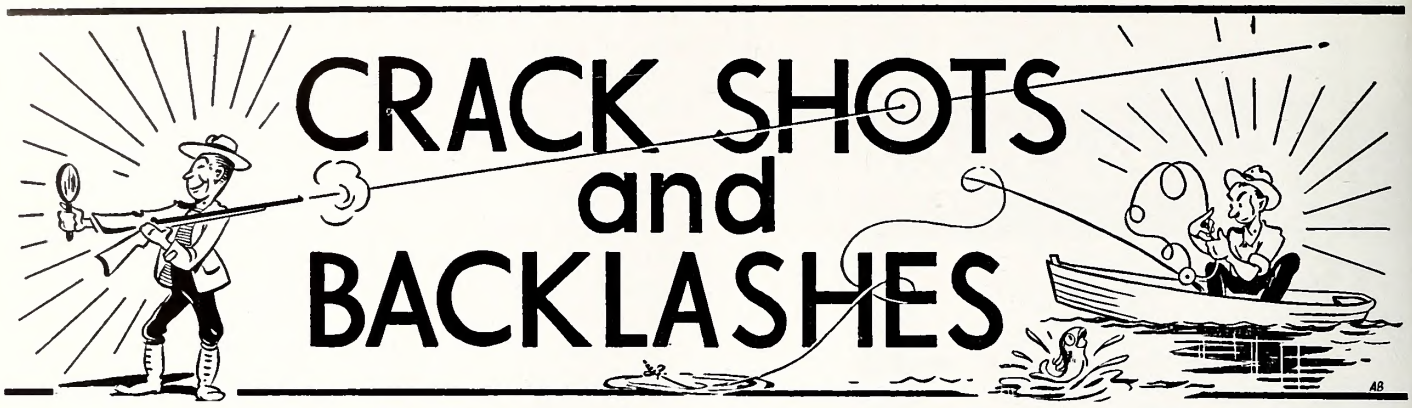
Boat and Motor Storage

Unless you plan to use your boat and motor frequently during the "off season," it most likely will save you some spring starting troubles if you take care of storing the rig now. Or better yet, let your marine dealer do the job. Care now will pay dividends next season as well as prolong the life of your craft and power plant.

While you're checking things over, give a special inspection to the life saving equipment. Constant weathering, rain or oil soaking, and general tossing around may have reduced the effectiveness of these items a great deal. Replace them if there is the shadow of a doubt.

Farm Pond Boating

Relatively little is said about boating on farm ponds, particularly from a safety standpoint. Considerable fishing from small boats is done on ponds in the winter and early spring, and this is a critical time for the outboard angler. Many of the craft used for fishing on ponds are dangerous. Most are too narrow for safety, some leak badly, and nearly all are difficult to maneuver. Be especially careful about your winter pond boating. Select a boat you can depend on; wear a life jacket; never stand in the boat and take it easy.



DEPARTMENT OF LETTERS TO THE EDITORS, FIELD NOTES, AND ITEMS OF INTEREST

Conducted By Rod Amundson

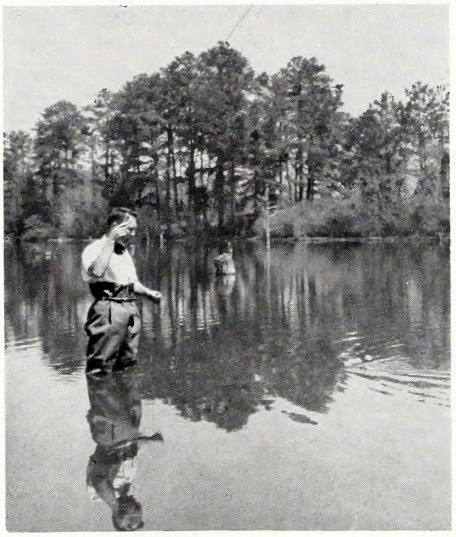
More than twenty years ago the late Dr. Robert Eschmeyer, who then was in charge of fish management for the TVA, advocated that restricted seasons and creel limits for fresh water game fish (except in stocked mountain trout waters) served no conservation purpose whatever. He pointed out that it is impossible to over-fish warm water fish populations with hook and line. North Carolina was one of the first states to follow his line of thinking by allowing year-round fishing for warm water fishing. Later, the Wildlife Resources Commission removed creel limits on pan fish in much of the state. Last October the Commission entirely removed creel and size limits on pan fish statewide except in Kerr Reservoir, where a mutual agreement with Virginia makes size and creel limits mandatory. In authorized commercial fishing operations a limit of 25 pan fish will be allowed with each operation, but no black bass or crappies (speckled perch) will be permitted. No pan fish or game fish will be allowed in authorized rough fish netting operations for carp, gar and other such species.

New Fishing Rules

When you buy your 1962 fishing license you will be handed a copy of the official 1962 fishing rules. This will be a streamlined edition, completely reorganized to make for better understanding. The new booklets will be available after January 1.

Invited Guests

Because there might be some question on the part of pond owners and anglers whether the term "invited guest" includes a paying guest, the Wildlife Resources Commission has instructed its law enforcement officers to include all invited guests, both paid and gratis, resident and nonresident, in the interpretation of the term "invited guest" when such guests are invited by the pond owner and are fishing in waters that can be classified as "private" as defined by law.



The 1962 Fishing Rules, available after January 1, are streamlined for easier use.

Private waters are: "bodies of water arising within and lying wholly upon the lands of a single owner or a single group of joint owners or tenants in common and from which fish cannot escape and into which fish cannot enter from public waters at any time."

Heart Worms

This letter was received last summer. Because of the interest in heartworms, especially during the hunting season, we asked Dr. Martin P. Hines, veterinarian with the State Health Department, to do an article on the subject. Dr. Hines' article appears elsewhere in this issue. He has been a consistent contributor to *Wildlife,* and is an avid bird hunter. While he was writing the article his own bird dog was under treatment for heartworms.

DEAR SIRS: I lost a fine English pointer this year with heart worms, as a result of letting a veterinarian try to treat him. I believe if I had just turned him loose and let him had his freedom he would have recovered. When I was a boy back home, we had dogs of all kinds. We never heard of heart worms, and our dogs never died of sickness as dogs do today. I have never known an old stray dog to die of worms, and I may be wrong, but I highly recommend this method. It is heart-breaking to lose a real fine dog trying to help it. REV. GARLAND D. JACOBS, DURHAM.

Here's a Switch!

Bill Hamnett, who has been spearheading the Wildlife Commission's hunter safety program, wrote this letter to Santa Claus. We hope the old boy got it, and young boys and their dads will read it.

DEAR SANTA CLAUS: We are all eagerly awaiting your visit to us. I am sure you have been as busy as we have getting plans and programs developed for the Christmas season. On the eve of that most cherished Day of Nativity, your world-wide influence will touch myriads of homes. Before you begin your nocturnal travel there is a last minute suggestion we would like you to consider.

There will be many boys and girls, who, having rid their neighborhood of Indians, cattle rustlers, and gangsters with their "six-shooters," will now want a real gun.

Unfortunately, the transition between a cap pistol and a real gun that shoots bullets is quite a change. But with a little help from you this change can be accomplished easily and effectively.

When you bring that gun will you please leave a few helpful hints of instruction on safe handling so the eager-eyed lads and lassies will know their guns and the guns will "know" them? Together they will make a happy team, enjoying our great out-of-doors and companionship with their fellow man.

Since you are probably quite busy these last few days with final arrangements and schedules we will outline some safety instructions, in order to save you time.

Please tell them this:

"Treat your gun at all times as if it were loaded; so, always point the muzzle in a safe direction, and if the gun is to be fired to be sure of the target and what's behind it—because if you miss the mark the bullet may still have a long way to go before it comes to rest. Also—

"Never put ammunition in your gun while it is still in your home. Remember, no gun, still loaded with ammunition, should be put away in the closet or placed on a shelf. By the way, it's always good to store your ammunition in a separate place from the gun because this will protect your inquisitive younger brother or sister who may slip your real gun out of the closet and dash to the backyard to protect their playmates from invading Martians."

As a final suggestion, ask them to spend some time with their parents practicing how to carry, aim, and fire their guns safely so the parents will know they are responsible enough to handle guns by themselves. There are others more than glad to help them if they would but only ask. The local police, who probably have a firing range; YMCA's; local wildlife clubs; pistol and rifle clubs and of course their wildlife protector will be most anxious to help wherever and whenever he can. WILLIAM L. HAMNETT, HUNTER SAFETY TRAINING PROGRAM.
N. C. Wildlife Resources Commission

Gentle amounts of snow accent Nature's beauty. The ground water needed for next spring is recharged and the streams are filled. Heavy snow can make food-gathering for wildlife difficult, however, and prolonged ones may result in winter kills.

More on Bluebirds

DEAR SIRS: In the October issue, on page 23, was a letter about the bluebird situation. This condition is well known by the bird students and the Massachusetts Audubon Society is doing some field work and study to try and find the cause of this apparent decrease. The writer is helping in Polk County and during the past breeding season has conducted a survey, the result of which will be sent to the Massachusetts society.

To pinpoint the cause at this time would be impossible, but I am sure the near future will uncover the contributing cause.

I wrote to Mr. Rush and gave him what information I had. As these censuses and surveys continue it will be interesting to see what we find. C. T. DOWNER, TRYON.

The work of such individuals as Mr. Downer has done much to unravel many of the mysteries of nature. We all hope for an answer soon to the problem of the disappearing bluebird.

We Should Live So Long!

DEAR SIRS: My subscription expired with the current issue—consequently I am forthwith handing Mr. J. L. Musselwhite my renewal for two years, as well as renewal for my grandson in Louisville, Kentucky.

Early this year I gave Mr. Musselwhite what I would believe is one of the longest if not the longest subscription you have ever received. The subscription went to the Boys Brigade Club of Wilmington, and was for 35 years. Mr. Musselwhite is zealous in his endeavor in obtaining subscriptions, and to mention the above in your fine publication could be an inspiration to others. He, as you doubtless are aware is one of our fine protectors and is due the thanks for the subscription. RALPH ROLLINS, WILMINGTON.

Thank you, sir! That's a record. —Ed.

Aquatic Complexity

DEAR SIRS: I still think Wildlife in North Carolina is tops in promoting and preserving wildlife resources in our beautiful state.

Recently we were told by our local protector that the biologist's explanation of large numbers of dead catfish appearing on Lake Hickory was due to change in the temperature of the water. Please explain how the water turns over twice a year in spring and fall. This seems to defy a basic law of physics. It seems strange that only the catfish were killed. Anyone who has ever caught catfish and game fish knows from experience that catfish outlive the other fish under almost any circumstances, in a container of water or out of water. I know that oxygen is the important factor but would like an explanation of what actually happens. JAY CLYDE FOX, TAYLORSVILLE.

Your recent letter concerning a fish kill in Lake Hickory presents rather complex problems. Oftentimes considerable speculation and theorizing goes into the diagnosis of the various fish kills encountered over the state. However where only one species seems to be affected (as in the case of the catfish kill in Lake Hickory), evidence points to one or two specific causes.

Although catfish are rather resistant to some of the forces that harm other fish, in this particular case they were apparently the only fish that were in the immediate vicinity of a release of some toxic gas in the decaying material on the lake bottom. This gas could have been a high concentration of carbon dioxide, methane

Wildlife PRODUCES for NORTH CAROLINA

PROTECTOR OF THE MONTH

Henry L. Bazemore

The Hertford County Wildlife Protector, Henry L. Bazemore, was born in Bertie County, July 31, 1924. He graduated from Lewiston Woodville High School.

Mr. Bazemore was employed as a wildlife protector April 1, 1954, after having completed the pre-service training school for wildlife protectors at the Institute of Government in Chapel Hill. He has also completed four in-service training schools.

Mr. Bazemore is a member of the Southeastern Law Enforcement Association and the Hertford County Peace Officers Association. He is also a hunter safety instructor for the National Rifle Association. He is married to the former Iris White of Windsor and they have two sons and two daughters. They are members of the First Baptist Church in Ahoskie, North Carolina and they reside at 500 McGlahon Street in Ahoskie.

ENFORCEMENT RECORD FOR SEPTEMBER

HUNTING & FISHING:	
Persons checked	29,427
Total prosecutions	591
Total convictions	576
Total cases not guilty	4
Total cases nol prossed	11
Total cases dismissed	0
Total fines collected	$4,039.25
Total costs collected	$4,063.65
BOATING:	
Boats checked	4,008
Total prosecutions	163
Total convictions	161
Total cases not guilty	1
Total cases nol prossed	1
Total fines collected	$ 371.00
Total costs collected	$1,243.09

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violations occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

or some other by-products of decay.

At the time of the spring and fall turnovers, the water near the bottom of the lake (containing a higher concentration of gaseous materials) circulates and is distributed throughout the rest of the lake water.

The spring turnover is a result of the colder water (which is heavier) sinking slowly and the slightly warmer water at considerable depths rising slowly. Relatively light winds may enhance this circulation and a complete turnover is achieved. All this starts with a condition of slightly colder water on top and slightly warmer water in the deeper portion of a lake or reservoir.

As you can see this is a rather complex process but one which is based on water weights and densities and accompanying temperatures. Often the fish kills associated with these turnovers result from a combination of low oxygen and high concentration of other gases thus the actual killing may be done by a lack of oxygen rather than a toxic gas.

I regret that space does not permit a more exact and conclusive explanation. DUANE F. RAVER, WILDLIFE EDUCATION REPRESENTATIVE.

Wildcats, Anyone?

DEAR SIRS: I want contact with the best bobcat hunters and trappers. My 6000-acre tract, mostly surrounded with North and East River and Prince George Creek, is full of cats. I am a deer hunter and haven't seen but two fawns in 10 years. Have cat hunters to write to me. C. W. LONG, 1006 FIFTH STREET, WILMINGTON.

Mr. Long has been put in touch with the Predator Control Branch, U. S. Fish and Wildlife Service, N. C. State College, for further assistance with his problem.

DEAR SIRS: Here is my subscription to Wildlife for two years. I think you have a truly magnificent magazine, good material and fine articles about North Carolina wildlife.

I think, however, a big article on bow hunting and fishing would be of great interest to a lot of bowmen. And as this is a great sport, and the fastest growing sport, I think you should print the rules and by-laws pertaining to hunting and fishing with bow and arrow.

Any other information you may have on this subject would be greatly appreciated. BOB STEPHENS, CHARLOTTE.

We could use such an article—maybe by an archer? The special rules on archery hunting are printed in the hunting regulations each year.—Ed.

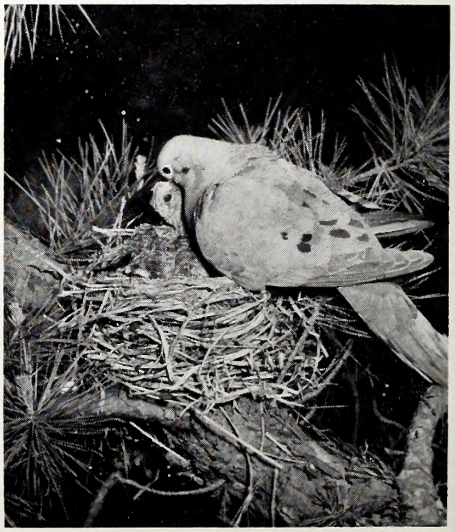
La Paloma

DEAR SIRS: Having the necessary literature at hand, I think I can give a fairly conclusive answer to the question that Mr. Parisot of Port au Prince raised in the August issue.

There are two very similar forms of mourning doves involved. First, the form of the eastern United States which, as far as we know is the form occurring in the Bahamas; and second, the West Indian form which occurs throughout the Greater Antilles, and also in the lower Florida keys. The only interchange between the United States and the West Indies of which we have any evidence is between the lower keys and western Cuba. Strangely, there is no evidence of interchange between the Bahamas and peninsula Florida. It is possible, of course, that some mourning doves in the Dominican Republic might interchange with those in western Puerto Rico, but those in Haiti presumably do not cross over to Jamaica since the species is unknown in eastern Jamaica.

I am not surprised that doves may leave one place at certain times. It is quite common for birds in the Tropics to wander extensively out of the breeding season in search of food and often to desert completely an area where at other times they are common. CHARLES H. BLAKE, HILLSBORO.

Mourning dove production has been at a high level and bag limits generous. This family is using an old robin's nest.



Wildlife PRODUCES for NORTH CAROLINA

President Signs Wetlands Acquisition Bill

President John F. Kennedy on October 4, 1961, signed into law H.R. 7391, authorizing an emergency loan on $105 million for the Interior Department's Bureau of Sport Fisheries and Wildlife to acquire the wetlands necessary to preserve continental flights of migratory waterfowl, the National Wildlife Federation reports.

Passed by the Congress shortly before adjournment, H.R. 7391 now becomes Public Law 87-383. The bill was sponsored by Congressman John D. Dingell (Mich.).

The bill authorizes the $105 million interest-free loan over a seven-year period, after which repayment begins at the rate of 75 percent of the annual sale of $3 Federal duck hunting stamps. Funds for the program, however, must be allocated each year and it appears unlikely that the additional money can be made available before next spring. The Department of the Interior will seek a deficiency, or supplemental, appropriation next January in advance of regular appropriations.

The Bureau of Sport Fisheries and Wildlife is starting necessary staff preparations in anticipation of the accelerated program.

In hearings before the Congress, the Bureau of Sport Fisheries and Wildlife indicated that the Federal government needs to acquire some 4,500,000 acres of waterfowl habitat. Of this total, it is expected that some 3,720,000 would be acquired by lease or purchase from duck stamp receipts. If funds for the authorized program are appropriated on schedule, probably more than half of the needed wetlands can be acquired by the end of the seven-year program.

Warden Has Unofficial Deputy

Arkansas Game Warden Ben Williams has discovered that his shepherd dog has a nose for squirrels—dead or alive. Testing the dog's initial indication of his keen talent, he placed several dead squirrels around his property and then released the dog, who found them quickly. Now, when Williams checks squirrel hunters the dog is there too, the National Wildlife Federation reports. If there are any extra squirrels around, in the car trunk or elsewhere, chances are the new helper will locate them.

W. A. Kennedy III

Hunting is a sport. The goal does not have to be "the limit" every time. Go out to enjoy the outdoors, share it with others, and above all, hunt safely. Some hunters won't return from their day afield; will you? Hunter safety is everyone's responsibility.

TVA Lake Charts

TVA's director of reservoir properties (Knoxville, Tenn.), Robert M. Howes, reports that TVA is preparing a series of recreation maps for all its waters. Available now from Director Howes' Knoxville office are maps for Chickamauga and Kentucky lakes in color. They show the location of public access areas, commercial recreation areas, boat docks, private clubs and group camps, subdivisions, public parks, wildlife management areas, boat launching sites, and lands open to public use on an interim basis. Maps for all other TVA lakes are scheduled for completion by the end of this month. This is a fine public service by TVA.

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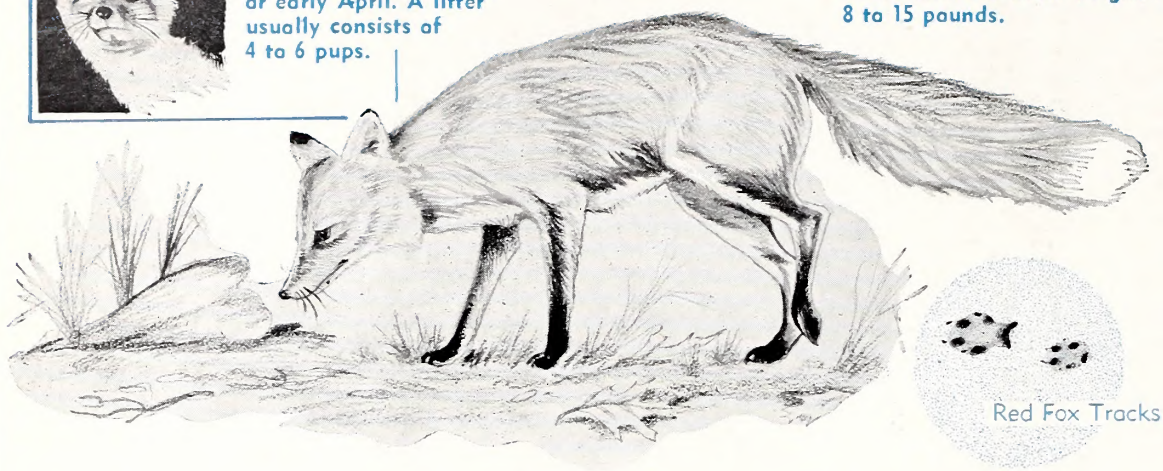
The young of the Red Fox are born in March or early April. A litter usually consists of 4 to 6 pups.

The Red Fox is a handsome animal with its reddish coat, sooty legs and feet, and darker tail tipped with white. An adult weighs from 8 to 15 pounds.



Red Fox Tracks

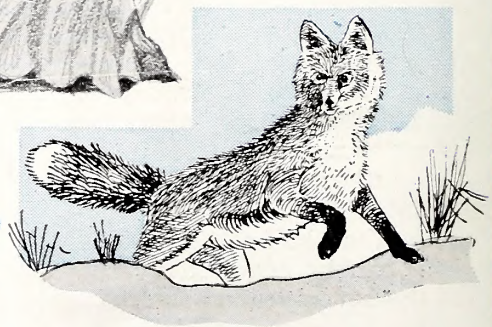
NORTH CAROLINA Foxes

The Gray Fox is a pepper-and-salt color above, blending to buffy orange. The tail is darker above and never white tipped.

Litters vary from 1 to 10 with 3 to 5 pups common.

D. RAVER

Gray Fox Tracks



The Fox has a definite role in the balance of Nature. He is neither all good nor all bad.

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